

STEEL

The Metalworking Management Weekly

EDITORIAL INDEX

VOLUME 162

January 1 to June 30, 1968

Subject Index 3

Company Index 13

THE PENTON PUBLISHING COMPANY

Penton Building, Cleveland, Ohio 44113

SUBJECT INDEX

A**Abrasives:**

Armour abrasives manufacturing machine rolls fast, two-story machine, 1/15, p.50
ASAM report: Education needed in abrasive grinding, 3/25, p.153

Acoustics:

Electronic circuits may employ acoustic rather than electronic waves, 2/19, p.22

Adaptive Controls:

Adaptive control goes into production (Steel Feature): Cincinnati Milling's Acramatic, now—the step beyond NC, 5/29, p.39
Adaptive controls 'the' topic at Design Eng. Show (Cincinnati Milling, McDonnell Douglas, GE units), 4/29, p.34
Adaptive controls hooked to EDM at Ford, 5/6, p.20
Bendix AC system for Grumman, forerunner of 1970 controls? 2/5, p.46
Rocketdyne drills holes with adaptive controls, 6/17, p.86*

Adhesives: See Joining**Aerospace:**

Adaptable backup plate is fixture for a five axis NC machine, reduces machining costs, 2/26, p.50h*
Convair uses diffusion bonding for structural components fabrication, 4/15, p.59
European aerospace firm formed (EEC), 4/15, p.24
Foreign machine tools attract firms, 4/1, p.54a*
IAM's Siemiller: Contracts without work stoppage, 3/4, p.19
IAM's Siemiller urges airlines to pay interest charge of 6% on retroactive pay increases, 5/13, p.19

Aerospace Industries Association:

Harr testifies before House Ways & Means Committee: Fears quota backlash for industry, 6/24, p.19

Utility Airplane Council reports number of new airplanes compared with year ago, 5/27, p.126

Africa:

Highveld Steel & Vanadium Ltd.: Walking beam furnaces, 2/19, p.56n*

Air Bearings: See Bearings, Bushings**Air Pallets: See Material Handling Equipment****Aircraft:**

Aircraft brake discs of beryllium instead of steel, Goodrich dev., 3/25, p.23

Aircraft trend to more plastics in '68, Hitco forecast, 2/26, p.50a*

Aircraft wings of graphite, Northrop scientist forecast, 6/24, p.46

American Airline Trijets get GE engines, 6/24, p.24

Avco's Lycoming speeds improved piston engine for general aviation, 2/19, p.56g*

C-5A Galaxy (AF), boron filament composites tested, 5/27, p.22

C-5A Galaxy cargo floors, beads boost bonding, 6/24, p.54

C-5A Galaxy spawns weight-less manufacturing, 6/10, p.70

C-5A giant aid in building Trijet, 6/10, p.71

DC-10 program at McDonnell Douglas, computer aided design, 5/20, p.23

Eastern Airlines may purchase large jetliner, 2/26, p.21

EB welding repairs worn jet engine blades, 6/10, p.90

GE (Wilbers): Advanced engines pose challenges for materials, 4/15, p.78c*

Helicopter blade inspection uses

automatic scanning-ultrasonic equipment, 1/22, p.47
Jetliner maintenance: Larger machine shops (market trends), 4/22, p.113
Lockheed's Trijet L-1011, 4/15, p.24
SST timetable in jeopardy (aimed at '75), 2/5, p.19
VTOL aircraft (vertical takeoff and landing) pushed by DOT, 6/17, p.19

Air Force:

Study seeks improved NC operations, pilot program, 3/18, p.56a*
Hi-temp alloys draw top interest at machinability data center (AFMDC), 4/22, p.49

Air Freight:

Household goods to fly by jet, 1/1, p.29

Air Pollution:

Air pollution control equipment, competitive market, 5/27, p.126
Auto components hit in air pollution (vinyl upholstery, steering columns, floor mats, sealing compounds), 3/4, p.47
Auto pollution research boost, \$36 million, 2/19, p.20
Pollution control capital investment cost 'sky high', industry needs government aid, some state incentives provided, 5/27, p.51
SAE speaker (Dr. Morse) MIT, charges tunnel vision (air pollution control), 1/22, p.31

Air Tools: See Tools (Air)**Alabama:**

USWA urging revival of Alabama's ore industry, 2/5, p.76

Alcoholics: See Health, Education**Alloys:**

Aircraft materials for advanced engines, superalloys, 4/15, p.78c*
Alloys for weld repair, Austria, 1/8, p.15
Cobalt alloys resist corrosion, 1/8, p.14

Ferrochrome alloy dissolves fast, suitable as ladle addition to furnace heats, 4/1, p.54d*

Hafnium-tantalum alloy, dev. of Fansteel, 6/10, p.88

Hastelloy N, nickel-base alloy aids salt reactor, 1/1, p.31

Hi-temp alloys draw interest at AFMDC, data center, 4/22, p.49

Magnesium-lithium alloys take cryogenic temps, 1/22, p.25

New alloy handles vibration, manganese-copper-aluminum-iron-nickel, 6/3, p.21

Nickel-chrome-iron alloy resists turbines 1725 F, 1/15, p.40

Olin Aluminum KO-1, aluminum-copper-magnesium-silver alloy new, 4/29, p.23

Tips on metals you can hardface, 3/11, p.40

See also Steel Alloys

Aluminum Association:

1967 shipments of aluminum for cans, 5/29, p.58

Adopts standard structural shapes, 1/29, p.19

Aluminum Markets:

Aluminum consumers inventory buildup against possible June strike of three largest producers, 1/22, p.23

Aluminum sheet shipments, 1/22, p.24

Aluminum use seen rising in 1968-1970 period, 1/15, p.67

Auto use seen doubling in decade, 1/29, p.51

Aluminum Mills:

Anaconda, Bristol install mills, 5/20, p.22

German aluminum rolling mill, Rhineland, 1/8, p.16

Poland: Aluminum oxide made without bauxite ore, 6/10, p.23

American Foundry Society:
Casting Congress, Cleveland—new developments, 5/6, p.23

American Gear Manufacturers Assn.:

Annual meeting: Advances reported (cold and warm forming, etc.), 6/17, p.54

American Institute for Imported Steel:

Kurt Orban: '68 a worrisome year for the importer, 3/11, p.35

AISE Show Feature:

Steel's fight for survival, special report, 6/17, p.59

American Iron & Steel Institute:

Convention speakers: Blough (U. S. Steel), Young Jr. (Urban League), Martin (AISI), 5/27, p.71

Foreign steel into U. S., steel mill products, 4/8, p.19

Steel imports set monthly record, Nov. '67, 1/15, p.13

American Management Assn.:

Elects Trowbridge Jr. president, 5/13, p.20

Meeting speakers, Urban Action Programs (ghetto), 6/10, p.21

Personnel conference speakers: Coalition bargaining, 2/26, p.34

American Society for Abrasive Methods:

Annual meeting report, education needed in abrasive grinding, 3/25, p.153

American Society for Metals:

WESTEC show: Spotlight ECM, EDM, 3/11, p.19

American Society of Tool & Mfg. Engineers:

Western Metal Show speaker (Pratt): Higher properties seen in powder metal trends, 4/15, p.78*

Engineering conference & tool expo, highlights, 4/22, p.67

Fluidic devices exhibited at show, 5/27, p.85

American Zinc Institute:

Kimberly reports lead, zinc marketing attack, Montreal meeting, 4/15, p.107

Anodizing:

More automation coming in anodizing, 2/19, p.21

Appliances:

Will boom end in second half? 6/10, p.129

Appliance makers go easy with steel hedge buying, market report, 3/11, p.71

Batteries-market for small appliances, 3/11, p.71

Gas appliance sales drop, 1967, 2/5, p.78

Maintenance costs lessen, 2/19, p.21

Area Development:

For industrial expansion—revenue bonds to lose edge, tax exemption may end, 3/18, p.19

See also Urban Affairs

Atomic Energy:

Aachen research: Will atoms steal steelmaking scene, nuclear reactors, 2/19, p.56a†

Nuclear power for electrical generation, AEC: Nuclear power timetable (4 firms), 3/11, p.72

Nuclear powerplants, cost increases no deterrent in deciding to build, 4/22, p.114

Australia:

Alumina plant planned by Nabalco Pty., 3/4, p.21

Asian development plans, 6/24, p.23

Automakers fight Japanese imports, 3/25, p.24

Broken Hill Pty. may join British

group in new steelworks, 3/18, p.22

Engine dev., to compete at Indianapolis races, 5/27, p.13

Iron ore to Japan, Hamersley Iron Pty. contract, 3/4, p.21

Nickel crescent-shaped province backed, 3/18, p.21

Nickel refinery planned by Western Mining Corp. Ltd., 3/4, p.21

Nuclear research center: Ores assayed via isotopes, 2/26, p.22

Rotary engine design by Andor Juhasz, engineer, 2/26, p.24

Steel companies forecast in next decade, 3/25, p.24

Steel firms combine to establish Indonesia outlet, 5/27, p.24

Automation:

Automated coil handling line, Joilet mill, 5/27, p.90m*

Automated system checks trucks (arrival, departure, weight), Ohio Seamless, 2/19, p.56n*

Automatic moldmaking helps cut small steel casting prices, 1/22, p.56†

Automatic shear, Central Steel & Wire, 2/5, p.48*

Automatic zinc plating line (barrels) at Controls Co. of America, 2/5, p.48*

Automatic zinc plating line (tubing) at Hofmann Industries, 5/27, p.79

Automation is multiplier: 1 press line = 9 different parts (Danly Synchro-Matic line for French auto plant), 5/20, p.58

Automation speeds ultrasonic inspection, 1/22, p.47

Hot forging goes automatic, Ford Canton plant, 1/15, p.33

Layout automation speeds inspection twentyfold (helicopters at Boeing-Vertol Div.), 2/12, p.69

Tubing plated via automatic lines at Hofmann, 5/27, p.79

Unimation—robots process automotive springseats through presses at Ford, 2/12, p.84*

Automotive:

1968—Year of auto warranty, 1/1, p.39

1968 sales dip, production cut, Ward Automotive report, 1/22, p.23

1968: Can sales hit 9 million? 4/22, p.11

1968 spring entries bring specials, Lincoln-Mercury Mark III, and AMC two seater AMX, 2/19, p.11

1969 models finalized by autodom, 3/4, p.11

1969 models-prices, 6/3, p.19

AMC: Has it turned the corner? Stockholders to get report, 1/29, p.23

Air pollution controls: SAE speaker (Dr. Morse-MIT) charges tunnel vision, 1/22, p.31

Aluminum use doubling in decade, 1/29, p.51

Australian-built engine to compete at Indianapolis, 5/27, p.13

Automakers defend their pricing, 4/8, p.11

Automakers shuffle executive ranks: Cole (GM) and Knudsen (Ford), 5/20, p.11

Auto suppliers balk at liability role, comments of McGinnis (NSMPA), 5/6, p.11

Automatic transmission, a look backward (today 350 hp vs earlier 185 hp), 1/15, p.47

Bumpermania hits SAE show, materials battle, 1/15, p.11

Chrysler: Auto horn part of brake check system, 1/22, p.55

Chrysler design, new steps outlined by Sinclair, chief engineer, technical systems, 3/11, p.11

Chrysler expands computer's role: Dynamic Inventory Analysis System (DIAS), and a computerized warranty system, 3/18, p.11

Chrysler windshield wipers better with nylon bushing, 2/19, p.56n*

Clad metals use to rise, 6/3, p.21

Fasteners for zero defect: IFI's unified plan reported by R. B. Belford, 4/1, p.19

Ford: Adhesives used in trim job, market report, 3/25, p.153
 Ford brochure lists quality control steps for '69 models, spec-traanalysis of fastener coils, 1/29, p.15
 Ford creates new ceramic tool material, 3/25, p.11
 Ford shows stratified charge engine design at SAE, 1/8, p.17
 Foreign carmakers continue push, 4/8, p.20
 Gear rolling gains in autos (Michigan Tool machine to roll sun gears at Ford), 4/15, p.11
 Glass reinforced thermoplastic sheet dev. (Azdel), 1/22, p.25
 Hard core unemployed training, Chrysler-Labor Dept. agreement, 6/24, p.11
 Imports stretch toward 900,000 mark, pic-Japan's Toyota, 1/15, p.19
 Integrated circuits (ICs) strive for auto maturity, 4/1, p.11
 Materials battle mapped by Thornton, U. S. Steel, 2/26, p.11
 NC die-making programs, 4/15, p.55
 Plastics in autos: A ten-year forecast (speakers at SAE meeting), 6/3, p.11
 Plastic bumper, Pontiac; Mustang rear bumper by McCord; Molded Fiber Glass reinforced version, 1/15, p.11
 Plastic replace steel for stone shields-exterior body panels, 4/8, p.20
 Powerplants continue in limelight: Gas, electric, steam, new Sterling-electric tested, 6/10, p.11
 Racers at Daytona powered by turbines, 1/22, p.33
 Rubber bumpers, more coming (urethane), 2/12, p.11
 Safety: Federal spending for '69—a start toward federal safety car, 2/5, p.11
 Safety hearing (Big Four): Why a \$23 to \$32 boost because of shoulder harnesses if cost to mfg. is \$5, 3/4, p.20
 Safety standards, auto stampers claim 'buck is being passed', who's responsible for government standards? 3/4, p.127
 Safety standards: Automakers defend their prices, government hearings, 4/8, p.11
 Safety standards: Can Washington legislate durability? Dr. Brenner, safety bureau, outlines four aspects, 4/29, p.11
 Safety Bureau readies compliance machinery, 5/13, p.11
 Safety design, New York project, dev. of Republic Aviation, 2/5, p.11
 Safety triggers new competitive era, innovations planned, 6/17, p.11
 Steam engine study, Ford and Thermo Electron, 3/25, p.24
 Turbocompactors vs turbines, 5/27, p.11

B

Balance of Payments:
 Border and value-added taxes on imports urged by NMTBA, 3/4, p.47
 Japan denies steel export quota to improve balance of payments, 2/5, p.20

Battelle Memorial Institute:
 1968 R&D spending predicted in breakdown, 1/1, p.29
 Composite (silicone carbide) fibers made via fluidized bed, 3/4, p.47
 Dr. Harris Jr. speaker at Design Eng. Show, trends in forecasting, 5/29, p.35
 Dev. of techniques (involve lasers and photogrammetry) for measuring distortion in welded structures, 4/8, p.22
 Freezing helps metal studies, electronic properties, 1/22, p.26

Batteries:
 Batteries for small appliances markets, 3/11, p.71

Bearings Industry:
 Bearing sales outlook, market report, 1/15, p.78
 Producers join machine tool builders and steelmakers for government aid in combating imports, 4/8, p.101

Bearings, Bushings:
 Air bearings of porous material developed, 2/26, p.21
 Air bearings one cure for problem environments, New Departure-Hyatt, 4/8, p.56
 Air bearing, one side covered with soft layer of neoprene, 5/13, p.22
 Journal bearing for nuclear application uses process fluid, 6/24, p.62a

Beryllium:
 Aircraft (C-5) brake has beryllium discs, 3/25, p.23
Blast Furnace: See **Steelmaking**

Boat Show:
 Canada to show GEMS, civilian version of patrol craft used in Vietnam, called Hovergem, 2/19, p.22

Bonding: See **Joining**

Bonds:
 Revenue bonds, tax exempt status may end, 3/18, p.19

Boron:
 Boron filaments tested on AF C5-A cargo plane, 5/27, p.22
 Boron increases hot strength of materials, studies of titanium and vanadium carbides, 5/27, p.22

Brazil:
 Aluminum complex financed, 1/22, p.26
 Boosts steel ingot production, 3/18, p.21

Brazing: See **Joining**

Brainstorming:
 STEEL's brainstorming session with three management consulting firms: Recruiters look at clients' changing needs, 2/12, p.76*

British Iron & Steel Research Assn.:
 Spray steelmaking is a commercial process, BISRA reports tech., 2/19, p.41

Buildings:
 See **Construction**

Bureau of National Affairs:
 Survey labor contracts with deferred wage or fringe benefit adjustment provisions, 1/8, p.12

Business (Economy):
 1967 vs 1968, labor-Vietnam temper optimism, 1/1, p.19
 1968 outlook, 1/8, p.4
 1968 business indicators for 1st half, 1/8, p.11
 1968-1969: Three sets of factors to shape business, increase in social security, income tax increase, monetary policy, 5/27, p.7

Bad news gets business down, how the consumer feels (purchasing power of earnings), 3/18, p.7

Cleveland Society of Security Analysts, forecasts, 5/6, p.9

Committee for Economic Development study (post-Vietnam), 4/15, p.7

Companies short on cold cash, 3/4, p.7

Consumer spending, forecast, 1/29, p.4

Consumer buying, hard goods gains, 4/8, p.7

Council of Economic Advisers: Guidelines for economic stability, price-wage, 6/3, p.41

Don't let enthusiasms run wild (Vietnam peace talks, stock market climb), 4/22, p.7

Gold rush reality: Somebody must pay (Rundt), 3/25, p.37

Gold crisis, U. S. holds hammer but will we use it? 4/8, p.51

Inflation, how will we check? Hourly earnings, price index, 4/1, p.7

Investment curb penalizes business, 1/15, p.4
 Manufacturing, 1st quarter, 3/25, p.7
 Manufacturing, 2nd half forecast, 6/24, p.7

Metalworking, what managers expect in 2nd half of '68, 6/3, p.35
 Metalworking's share in the economy for fiscal 1969, LBJ plans selective increases, 2/5, p.35
 Metalworking sales and profits, will '68 improve? 2/19, p.7
 Metalworking sales, profits, 1st quarter, 5/13, p.7
 STEEL's Panel, semiannual survey, 4/1, p.35
 Steelmakers 1st quarter, 4/29, p.7

Business Equipment:
 Marketing report, sales-earnings 1st quarter, 5/6, p.85

Buy American: See **Government**

Byproducts:
 Fansteel adopts task force concept to promote potential of by-products, 6/10, p.83*

C

Canada:
 Antidumping viewed by steelmakers, 2/26, p.23
 Capital spending rises, 4/15, p.24
 Strike hedging, U. S. steel users (prestrike), 2/12, p.19

Cans, Cannaking:
 PVC plastic containers, new markets, 4/22, p.22
 Tin-free steel cans, market report, 5/27, p.21

Capital Expenditures:
 Capital spending, all industries, 3/18, p.9

Capital spending, New England surveyed by Federal Reserve Bank of Boston, 6/17, p.151
 Overseas spending vs capital outflow, Commerce Dept., 1/8, p.11
 Steelmakers hike spending in '68 (chart), 2/12, p.61
 Steel plant and equipment, 2/12, p.17

Casting, Castings:
 Atlas adds degassing to continuous casting, 5/27, p.84

Automatic moldmaking helps cut small steel casting prices, 1/22, p.56

Computer controls at Chevrolet's Saginaw foundry: Tapes 'real life' story of each casting, 3/25, p.46

Consumable (polystyrene) patterns trim costs in casting 23,000 lb auto panel die, 5/27, p.83
 Continuously cast billets conditioned with hot sawing (Bliss and Robin venture), 3/4, p.23
 Continuous caster keynotes simplicity (Lake Ontario and Gamma Engineering Ltd.), 6/3, p.43†

Continuous casting at Interlake new, rapidly oscillating mold walls a feature, 3/4, p.20
 Continuous casting units purchased by Armco, Bethlehem, 4/22, p.23

Koppers banks on future of continuous casting, (Fletcher Byron reports), 1/1, p.108w⁸
 Premium engineered casting pay off at Alcoa foundry, 5/27, p.64

Catalytic Oxidation System:
 Paint fumes provide heat to speed paint baking process, coil coating plant, 1/15, p.48

Chemical Milling:
 Lockheed chem-mills parts for giant transports, C-5A and Trijet, 6/10, p.71

Chemicals:
 Chlorothene VG vapor degreasing solvent ups allowable exposure level, Dow Chemical, 4/22, p.78x*

Chlorinated vapor degreasing solvent, Dow Chemical, 5/13, p.62a*

Clad Metals:
 Fansteel developments, 6/10, p.88

Cleveland:
 Dr. Paul Briggs (CPS): The dropout, how to reclaim lost manpower, 1/29, p.38

Cleveland World Trade Conference: Baylis (International Trade Docu-

mentation): Paperwork jungle strangling foreign trade, 4/8, p.23

Torben Ronne (Denmark) and Lumb (Republic) speak on import quota proposals, 4/8, p.21

Coating: See **Finishes, Coatings**

Coil Coaters:

Aluminum coil coaters, sales boom report, 5/20, p.21

Coil coaters face problems of success (Impact story and cover pic.), 5/6, p.42 S-1

Sources (firms and addresses) for coating services and products, 5/6, p.48

Coil Handling:

Automated coil handling line, Joliet mill (U. S. Steel), 5/27, p.90m*

College:

College (Ann Arbor), GM (Hydromatic Div.) outpoint job skill lag, cooperative program, 3/25, p.50

Compensation programs, appeal to newly hired grads (three track-salaries), 1/15, p.38

Draft rules cause little change, 4/29, p.21

Starting salaries, Bachelor's and Master's Degrees, 1/8, p.14

Students challenge industry at NICB workforce conference, 6/10, p.24

Color Coding: See **Steel Shipments**

Company Operations:

Ajax Magnethermic (John Logan): The hot new pace of induction heating, STEEL Feature, 3/4, p.49

AMC turns the corner, 1/29, p.23

Calumet Steel Div.: Steelmaker drafts a blueprint for revival, 2/12, p.65

Crucible Steel (Lobb): How to revitalize a company, 1/8, p.16

Cummins tackles training via programmatic approach, 3/4, p.53

Ducommen stresses manufacturing in its planning, 5/13, p.64b*

Koppy Tool tells . . . How to wade into NC without getting soaked, 5/20, p.52

MPB Corp.: How to diversify and make it pay off, 4/22, p.71

Robin Steel: Seeding thrusts out new roots, 5/20, p.48

E. B. Welded Products: Holland (president) shows prototype of EB weld shop of tomorrow, 2/19, p.54

Wheelabator charts course for overseas profits, 3/11, p.46a*

Compensation:

For executive growth—three track compensation concept to run on: McKinsey & Co.'s Patton reports, 1/15, p.37

Components:

Inventories, 1st quarter, 2/5, p.7
 2nd quarter inventories, 5/6, p.85

Computer Time Sharing:

The booming business of renting seconds (STEEL Feature), 2/26, p.37

Computers, Data Processing:

3-D radar via computer tracks 250 planes simultaneously, 5/27, p.22

Atomic analysis cost cut with computerized spectrometer, 3/11, p.22

Computers in 1970s will 'talk' to instruments on plant lines, 2/19, p.56g*

Computer aided welding inspection, 3/18, p.23

Computer centers for machining work orders, 3/11, p.19

Computer center system to match job orders to job shop (Soliman developer), 4/1, p.37

Computer checks axle assembly at GM, 3/4, p.22

Computer-microfilm system retrieves documents in seconds, 6/24, p.62b

Computer-produced drawings used at Sanymetal Products, 6/10, p.80

Computer—self testing, self-repairing, 3/25, p.22

Computerized system for reporting capacity in tool and die shops under discussion, 4/1, p.83
Data communications equipment, 1200 words per minute using inexpensive ink and Teletype paper, 5/13, p.22

Dual computer tested for metal fabrication industry, 5/27, p.90q*
GE's integrated data store (IDS) uses single file, 3/18, p.23

Honeywell markets Keytape unit, 2/26, p.73

Management computer system, Chrysler expands role: Dias (dynamic inventory analysis system) and a computerized warranty system, 3/18, p.11
Management computer system, Westinghouse, 1/29, p.33

NTDPM computer system (Washington) links member shops with buyers across the country, 5/6, p.19

Optical reader eases shop errors, 1/8, p.14

Scanners (digitizers) used by automotive, 4/15, p.56

Scientific computer gives pressmaker benefits, Danly Machine, 5/27, p.63

Time sharing computer (IBM) at desk, System 360 model, 6/17, p.23

Touch tone phones at Ruhr Corp. feed facts to computer, keeps track of order progress, 4/15, p.78f*

Worldwide shipments of new computers predicted for '68, 2/12, p.21

Westinghouse—taking the paperwork out of managing, information management systems, STEEL Feature, 1/29, p.33

Construction:
Office building in Manhattan, outside has structural steel, 4/15, p.23

Pre-engineered metal buildings for warehouses, plants, etc. (don't call them tin sheds anymore), 2/19, p.49

Construction Equipment:
Construction machinery equipment, market trend, 1/1, p.154 and 4/1, p.84

Consumer Buying:
'Me tooism' irks consumer, tarnishes marketers' image: Report at Midwest Marketing Conference, 4/8, p.50

Consumer Products:
Consumer affairs concern role of quality control, Betty Furness speaker, 5/20, p.41

Containers: See Getting Goods to Market

Contract Shops:
Diemaking: Contract shops fight captive trend, 5/27, p.59

Coolants: See Lubricants

Copper Industry:
CDA confident plumbers like copper, market report, 5/27, p.125

Coppermen worry — materials switch, strike effect, 2/19, p.21
Copper users face 'crunch points' as strike drags on: what product lines to shut down first, 2/26, p.33

Copper industry emerges stronger than ever, strike aftermath, 4/8, p.49
Fabricators bide time (strike), 4/22, p.21

Price as critical as supply, 1/15, p.11
Soft steel replaces some copper at Armco, 3/4, p.47

Steel covets copper's home plumbing business, 3/11, p.46j*

See also Labor (Copper Strike)

Cornell Aeronautical Laboratory Inc.:
Panel display has single layer, 1/29, p.18

Corporate Organization:
New jobs in your company? Write STEEL, 2/19, p.44

Corrosion:
Anticorrosion process dev., 6/24, p.22

Stainless P/M partmaker licks corrosion problem (making high strength structural parts), 5/27, p.90e*

Cryogenic:
New alloys take cold (magnesium-lithium), 1/22, p.25
Underground cables chilled by liquefied gases could transmit electric power to expanding cities, 4/29, p.24

Crystals:
Dual chamber crystal growing furnace, Norton, 6/24, p.62a
Graphite crystal reflects x-rays, 6/10, p.22
Liquid crystals display TV print, 6/10, p.22

Cutting, Shearing:
Automatic shearing provides production speed, accuracy: Central Steel & Wire installs four Auto-Shears built by Cincinnati Shaper, 2/5, p.48h*
NC auto-shear, Cincinnati Shaper, 4/15, p.81

Cutting Tools: See Tools (Cutting)

Cutting Torch:
Cutting torch design, cuts 'light up' costs, 1/1, p.108g*

D

Defense:
1969 fiscal budget, 2/5, p.37
Centralized machine tool purchases studied, 1/8, p.12

Defense:
DoD's management practices assailed, procurement and management of property, 5/6, p.39
Defense expenditures for fiscal 1969, 1/1, p.29
Draft rules cause little change with college students, occupational status, 4/29, p.21

Defense Contracts:
After Vietnam . . . how will metalworkers fare? 4/29, p.19
Defense profits to get renewed review, 6/24, p.35

Federal contracts . . . Minority utilization records a must (new antidiscrimination regulations), 6/17, p.19

General Accounting Office to review equipment study, 1/15, p.14

Navy subcontracting, small business encouraged, 4/29, p.21
SBA urges small firms to seek contracts, 5/27, p.23; why ignored by small firms, 6/24, p.23

Degreasing:
Chlorinated vapor degreasing solvent, Dow Chemical, supplies safety, savings, 5/13, p.62a*
Chlorothene VG—vapor degreasing solvent ups allowable exposure level, 4/22, p.78x*

Depreciation:
Patchwork depreciation leaves many firms cool (Joel Barlow, lawyer, report), 2/12, p.70

Desalination: See Water

Design Engineering Show:
Adaptive controls 'top' conversation, 5/29, p.34

Fastener developments, 5/29, p.36
Speakers discuss trend toward long-range forecasting; research costs rise (salary for R&D men), 5/29, p.35

Diecasting:
Diecastings, molded plastics combination, future uses, 3/18, p.23
Electroforming tests, provides hardness for dies, 3/4, p.21

Diemaking:
Articles—Impact of a changing industry:

1. Die materials—where molecules need muscles, 2/26, p.45
 2. EDM—it's magic turns to money, 3/18, p.49
 3. NC speeds the pace, 4/15, p.55
 4. Contract shops fight captive trend, 5/27, p.59
- Castable ceramic die material (Pyro-Form) dev. jointly, 2/5, p.48s*

HERF die steels, Electro Dynamic surveys owners of its Dynapak machines, 4/8, p.64
Die users give tips on material selection, 4/22, p.78z*
Renault uses NC diemaking system, 1/15, p.13
Teflon-coated dies, North American Rockwell, 4/15, p.21

Diversification:
How to diversify and make it pay off (MPB Corp.), 4/22, p.71

Dolomite:
Carborundum tests evaluate dolomite as means of reducing sulfur dioxide, 5/13, p.22

Drawings:
Computer-produced drawings speed small firm's production, Sanyo-metal, 6/10, p.80

Drilling, Boring:
Ejector drilling system, Sandvik, 5/27, p.90j*
NC, EDM joined for low cost microhole drilling, 3/11, p.43
Rocketyne drill with adaptive controls, fluidic circuit operates grinding spindle, 6/17, p.86e*

Drums:
Jumbo drums at J&L save grease-maintenance costs, 2/5, p.48p*

Durable Goods:
Market trend, hard goods gains, 4/8, p.7

Dust Collectors, Filters:
Air filters trap oil at foundry, 5/27, p.85*

BOF air pollution cut by French Irsid-Cafl gas cleaning system, 4/22, p.78n*

Microcarbon filters—tube type—for water and air treatment, as well as plating processes, 4/22, p.82h*

Phosphatizing system desludged continuously, Clear-Pak unit, 2/19, p.56c*

Venturi scrubbing systems installed at McWane plant, using Dwight-Lloyd-McWane direct reduction process, 1/8, p.13

E

Earnings, Profits: See Financial

Economy: See Business (Economy)

Editorials:
Clear the Air, 1/29, p.13
Compete With the Winners, 5/13, p.17

Counterprotest (Princeton magazine, *Business Today*), 5/27, p.17

Do As I Say, Not—2/19, p.17
Going Up (metalworking dollar sales, costs, prices, 2nd half), 4/22, p.17

Health in Steel, a national goal, 4/1, p.17

How Far Do You Stay Behind? New technologies (Huber), 4/29, p.17

How One Company Plans (Eaton Yale & Towne), 5/6, p.17

In the National Interest (a healthy steel industry), 6/17, p.17

Japan Revisited (Campbell), 3/18, p.17

LBJ's Predicament, 1/8, p.9
Managers' Attitudes, 1/22, p.21

Men and Mergers, 1/1, p.17

Myths of Marketing, 5/20, p.17

On Protectionism, 6/3, p.17

Painful Paradox, 1/15, p.9

Peace is Bullish, 4/8, p.17

Senator Hartke: We agree! 3/4, p.17

Steel spends more, 2/12, p.17

Strikeouts, 3/25, p.17

Too Much Affluence? 4/15, p.17

Unrealistic Budget, federal outlay for '69, 2/5, p.17

We Lobby for English, more articulate engineering grads, 3/11, p.17

Where the Action Is (lower level manager decisions), 6/10, p.17

Will Your Firm Survive? 2/26, p.17

Who's Confused? (dairy product import quotas), 6/24, p.17

Educational Programs: See Training

Electric Motors:

Adhesives sub for parts in dc appliance motors, 6/17, p.86f*

Electric Power:

AEC: Nuclear power for electrical generation: Time table for 4 firms, 3/11, p.72

Aluminum use in power transmission, 4/22, p.114

Superconducting cable solves problem of transmitting electric power into expanding cities, 4/29, p.24

Thermoelectric unit: Direct power, 4/22, p.23

Electric Discharge: See Machining

Electrochemical: See Machining

Electrodes:

Electric arcs spur boom in graphite electrodes, 6/17, p.151
Tungsten electrode instead of silver; improves spectrometer (BOF analysis) at J&L, 4/22, p.82t*

Electron Beam:

Electron beam device cuts rocks, tested at Westinghouse Lab, 5/27, p.22

Electronics Industries Assn.:

1968 electronics sales growth, 6/10, p.20

Electronics:

Electronic circuits go acoustic, 2/19, p.22

Electronic lens 'writes' transistors with an ion beam, 4/29, p.23

Electron microscope, higher power (RCA), 4/29, p.22

Integrated circuits (ICs) strive for auto maturity, 4/1, p.11

Integrated circuits upgraded by radio frequency sputtering system, IBM, 3/4, p.22

Microcircuits get cold vapor deposition, 1/15, p.15

Wiring made of silver palladium paste, IBM, 4/15, p.23

Electroplating, Plating:

Automatic zinc plating line (bars): Rate is 4,000 lb of parts an hour, Controls Co. of America, Fremont plant, 2/5, p.48e*

Automatic plating line for chrome and zinc plated tubing at Hofmann Industries, 5/27, p.79

Gas plating practical now in some areas: UGP-Jenkin, speaker, 1/8, p.34

Ultrasonic plating studied at North American Rockwell, 4/22, p.23

Employment, Unemployment:

Business helping hard-core unemployed: Cleveland's Warner & Swasey, Brooklyn-IBM, New Jersey, Bell Lab, 4/29, p.21

Employment forecast: Top price for talent, 6/3, p.37

Hard-core jobs: Westinghouse establishes plant in Pittsburgh area, 6/17, p.21

Recruiting trainees: Concentrated Employment Program of Economic Opportunities Dev. Corp., 2/19, p.24

Engineers, Technicians:

Editorial: We lobby for English (more articulate engineering grads), 3/11, p.17

Cummins technicians trained via programmatic approach, coffee break sessions before projector, 3/4, p.53

Engineering enrollments down, 2/26, p.21

Engines:

Avco's Lycoming Div., improved piston engine for aircraft, 2/19, p.56g*

Australian engineer designs rotary engine, 2/26, p.24

Etching:

Acid spray method for chemically milled aluminum, Lockheed, 4/1, p.22

Executive Growth: See Management

Exports, Imports:

See Foreign Trade

Extrusion:

Extruding is one way to orient fibers in metal, 2/5, p.22
Extruded shapes of high strength steel cuts jet engine part cost, 4/22, p.78*

Glass lubricated process (Ugine-Sjournet) improved, 2/5, p.22
Hydrostatic fluid extrusion can produce reductions, Watervliet study, 5/13, p.22
Thin titanium extrusions—operation twiggly at H. M. Harper Co., 5/29, p.44

F**Fabrication, Assembly:**

Convair uses diffusion bonding in fabrication of heavy structural components, 4/15, p.59
See also Aircraft
See also Fasteners

Fabricators:

Steel fabricators, market report, 1/22, p.69

Facts & Figures:

Annual edition, 3/25, p.63

Fasteners, Fastening:

Acme thread tap for threading nuts on tail assembly of AF C-5A, 1/22, p.28
Autodum eyes unified plan for zero defect fasteners, 4/1, p.19
Blind rivet fastens thin sheet materials or plastic panels, 5/29, p.35

Design Eng. Show, new fastener developments, 5/29, p.36
Fastener makers switch to specials as imports climb, market report, 6/24, p.80
Fastening system for assembling soft core materials as honeycomb panels, 5/29, p.35
Five-die header for cold forming ball studs, etc., 1/1, p.108*

Ford brochure, Q101 Appendix E, describes quality control for '69 model parts, fastener makers must provide spectroanalysis of each coil, 1/29, p.15

Rapid riveter fastens attention on cost cuts, TRS Div., Townsend, 2/5, p.48

Ultrasonic wrench system seals flared tubing connections, 1/15, p.48

Fibers:

Ceramic fiber market soars, 4/29, p.20
Composite fibers made via fluidized bed, Battelle report, 3/4, p.47

How to orient fibers in metal, extruding is one way, 2/5, p.22

Insulation fibers (table), makers, types, 5/20, p.46

Whiskerizing adds muscle to graphite fiber composites, 2/26, p.22

Filaments:

Boron filaments tested for C5-A aircraft plane, 5/27, p.22
Filament wound epoxy glass-rings shrink transformers, 6/24, p.22

Filters: See Dust Collectors, Filters**Financial Analysis:**

Annual financial analysis of the steel industry, insert, 4/1, p.50a*

Financial:

Corporate profits, '67, 1/8, p.4
Revenue bonds to lose edge in industrial expansion money, tax exempt status may end, 3/18, p.19

Steel profits, 1st quarter, 4/29, p.7

Stockholders' equity in '67, lowest in four years, 1/8, p.4

Finished Steel:

Price increase on cold rolled strip, rail, 1/8, p.48

Finishes, Coatings, Paints:

Coatings sprayed on continuous cast billets, Czech, 1/1, p.29
Coatings of zinc dust applied to degreased ferrous metals, British patent, 4/29, p.23

Coil coaters (cover story), Impact Report, 5/6, p.42 S-1

Coil coating line, Hunter Eng., installed in facility built by Reliance Steel & Aluminum, 3/11, p.23

Coil coating plant—paint fumes provide heat to speed paint baking process, 1/18, p.48

Electrostatic fluidized bed coater to be shown at corrosion show, 2/26, p.22

Gas plating (dry coating and forming process) now practical in some areas, 1/8, p.34

Spray guns oscillate to paint pails better at Bennett Industries, 2/5, p.48n*

Stainless sheet gets all-purpose coat: Peelable plastic coating, 4/1, p.49

Water base paints, market report, 1/29, p.61

Fluid Power Industry:

Market report, 3/25, p.154
Virtual fluid motor yields rotary power (Dynavector), 6/17, p.79

Fordham University:

Fr. Hogan: No steel strike (addresses Steel Service Center, N.Y. chapter), 2/26, p.19

Foreign Aid:

Export-Import Bank credit for Mexican National Railways, 5/20, p.23

Export-Import Bank expansion passes Congress, 3/4, p.47

Foreign Competition:

AIIS (Kurt Orban): '68 a worrisome year for the importer, 3/11, p.35

Aerospace industry fears import quota backlash, 6/24, p.19

Bearingmakers seek government aid in combating imports, 4/8, p.101

Machine tool exec (G&L-Kraut) raps unfair foreign competition, 1/22, p.91

Machine tool imports concern of industry: NMTBA speaker, 3/25, p.19

NMTBA calls for elimination of nontariff barriers which they face in exporting abroad, 2/19, p.33

NMTBA won't seek import quotas at Trade Information Committee presentation, 5/13, p.19

NMTBA's selective import surcharge plan faces cool government reception, 6/17, p.53

Norris (National Foreign Trade Council): U. S. role in world trade balances on export growth, 6/3, p.34

Stainless producers cry 'halt' to scrap exports, nickel and nickel-bearing, 3/4, p.45

Steel import quota bill (Hartke) may go to Senate, 2/5, p.20

Steel quotas of pig iron and steel products urged by Republic's Patton and USWA Abel, 6/24, p.19

Technology may fend off steel imports, Pierce (Allegheny Ludlum) reports, 6/17, p.19

Foreign Investment:

American firms in Europe need sensitivity, consultant reports, 2/19, p.23

Argentines oppose investments by U. S. Steel and Dow Chemical, 3/25, p.24

IBM stresses native managers for top spots overseas: Yankee stay home, 5/13, p.56

Investment curb penalizes business, 1/15, p.4

Investment curbs to be modified, Commerce Dept., 1/29, p.15

Overseas spending vs capital outflow, federal curb essential (views of Joel Barlow, Washington tax attorney), 1/8, p.11

U. S. business in Europe: Forced Retreat? Map shows scheduling for foreign direct investment (MAPI) Stewart before House Ways & Means Committee, 4/15, p.60

Wheelabrator charts course for overseas profits, joint ventures, 3/11, p.46a*

Foreign Trade:

Developing Nations' imports up, 2/5, p.24

East-West trade, House Foreign Affairs hearing: Should we expand trade with the Red Bloc? 3/18, p.37

East-West trade: Red Bloc's

view—U. S. hinders trade growth; what Russia wants to sell to the U. S. (chart), 3/25, p.39

Foreign-made machine tools, U. S. markets, 1/15, p.77

Foreign steel imports gains momentum, 2/5, p.20

Free trade policies can be traumatic, report of R. Heath Larry, U. S. Steel, 5/27, p.20

Free World trade (Dr. Hans-Guenther Sohl addresses AISI), 6/3, p.21

Import quota proposals stir controversy: Views of Torben Ronne (Denmark) and Lumb (Republic), 4/8, p.21

Imported machines help a builder (Fellows Gear) make a 'systems' line, 3/18, p.48

Japanese machine tool exports rising, 4/1, p.84

Metalworking exports creep up, foreign competition skyrockets, 6/3, p.40

Nontariff barriers U. S. faces abroad (countries), 2/19, p.34

Nontariff barriers stymie Free World trade: Dr. Weidenhamer, U. of Pittsburgh, 5/6, p.40

Steel import problems aired at NAPA convention, 5/27, p.21

Steel import quotas? For and against (Roche, Eckley), 4/1, p.43

Steel import quotas could push import prices, 5/27, p.19

Steel import quota gets USWA support, 5/27, p.20

U. S. exports to Japan, 1/22, p.26 and 5/13, p.91

U. S.-Japan Trade Council seeks freer trade, 6/24, p.36

U. S. role in world trade balances on export growth, 6/3, p.34

Foreign Wages:

American firms find European wage practices differ, 1/8, p.16

U. S. foreign wages far apart (chart), 6/10, p.83†

Forging, Forgings:

Drop forge (Chambersburg) converted to big HERF machine at Precision Forge, 4/15, p.78k*

Firm converts conventional drop forging hammers to HERFs, 2/12, p.22

HERF die steels rated by survey (Electro Dynamic surveys owners of its Dynapak machines), 4/8, p.64

Hot forging goes automatic, Ford Canton plant, cover pic, STEEL Feature, 1/15, p.33

Hot forging tech. to fabricate transparent alumina, 1/15, p.14

Punched cards control forging press, British firm, 1/22, p.27

Forging Industry Association:

Annual meeting, business outlook, 5/20, p.7

Forming, Bending:

Electroforming eyes hotter dies, 3/4, p.21

Five-die header for cold forming ball studs, shafts, etc., built by National Machineries, 1/1, p.108*

Fluid forming method, improved production at Arrow Lock (stainless canteen cups), 1/15, p.56a*

HERF die steels rated: General Dynamics surveys its Dynapaks owners, 4/8, p.64

Magnetic pulse forming, pilot production at Gult Gen. Atomic, Magneform, 3/4, p.21

Presses-high velocity forming at Precision Metal Products (titanium propeller, auto-gray iron flywheel), 4/22, p.82d*

Titanium formed without high heat, Greer Products, 5/6, p.23

Tube flaring machine, Dynaflare, 5/27, p.90a*

Warm formed plastics, Shell Chemical Co., 5/6, p.22

Foundries:

Alcoa: Premium engineered castings pay off, 5/27, p.64

Blaw-Knox consumable (polystyrene) patterns trim casting cost (23,000 lb auto panel die), 5/27, p.83

Computer controls: Chevrolet nodular iron foundry in Saginaw—tapes 'real life' story of each casting, 3/25, p.46

Computerized foundries predicted, Reuler - Sibley Machine & Foundry, 1/22, p.25

Erie Foundry: Magnetic conveyor saves GE \$10,000 a year, removal of ferrous material from sand, 2/5, p.48k*

Lehigh scores with triplex melting, 2/5, p.43

Maynard Electric Steel Casting: Automatic moldmaking helps cut small steel casting prices, 1/22, p.56

Pipeline conveying systems (sand handling), 5/13, p.53

Freight Cars, Freight Rates:

See Railroads

Fuels:

Industrial gas usage continues to balloon, 2/5, p.48s*

Furnaces, Ovens (Heating, Heat Treating):

Fuel fired, rotary furnace produces ferromanganese in 2 hours, 4/1, p.23

Induction melting furnaces described by Logan, Ajax Magnethermic, 3/4, p.50

Lehigh Foundries scores with triplex melting, 2/5, p.43

Scrap preheating systems, 3/4, p.55

Vacuum melt furnaces, three added at Republic-Canton plant, 2/19, p.54a†

Walking beam furnaces provide uniform heat, South African firm, 2/19, p.56p*

G**Gages:**

Air hardening steel cuts rejects of thread ring gages, 6/24, p.54

Coaxial air jet of air used pneumatic gaging system, British firm, 1/15, p.16

Galvanized Steel:

Galvanized steel for home plumbing systems, 3/11, p.46j*

Structural steel takes the big hot zinc galvanizing dip (pic. trash racks at Ala. Bouldin Dam), 2/12, p.76c*

Gas: See Fuels**Gas Plating:**

Gas plating nickel and alloy coatings, also called chemical vapor deposition, Jenkin (UGP) report, 1/8, p.34

Gearmakers:

AGM meeting: Advances reported in cold and warm forming techniques, 6/17, p.54

D. Brien (Ohio Gear): How to cope with price pressures, 1/8, p.59

Automotive gear rolling: Michigan Tool machine rolls sun gears at Ford's Transmission & Chassis Div., other makers, 4/15, p.11

Gears for tomorrow: Ben Bregi, president, National Broach & Machine Co., 1/15, p.41

Gleason to unveil new hypoid gear tester, eyed by automakers, 1/29, p.40

Fine blanking TV antenna rotator gears halves cost, 3/11, p.22

Unground shaper (hobbed) cutters at Hydra-Matic, and soon at Michigan Tool, 5/6, p.62a*

Germany (West):

Aachen Technical University: Prof. Wenzel researches nuclear reactor-atomic steelmaking, 2/19, p.56a†

Aluminum rolling mills in Rhine-land, 1/8, p.16

Erection of large oxygen plant, Saar area, 6/17, p.24

Technica-Guss manufactures horizontal casters, 5/27, p.90q*

Thyssen eyes record steel output this year, 5/13, p.21 and 6/3, p.75

Getting Goods to Market (STEEL Features):

1. Truckers tune up for faster runs, 1/8, p.27

2. Containers spawn marine transit boom, 5/13, p.45

Gold Crisis: See Business (Economy)**Government:**

1969 federal budget unrealistic (editorial), 2/5, p.17

1969 spending: A start toward federal safety car, 2/5, p.11

1969 fiscal budget: Where Johnson plans 'selective' increases, programs you'll want to check, 2/5, p.35

Antidumping code sparks debate (Sen. Hartke), 4/15, p.22

Auto warranty bills (Sen. Magnuson and Sen. Hayden), 1/1, p.39

Automakers defend their pricing, hearings, 4/8, p.11

Auto safety standards to tighten: Dr. Brenner, Highway Safety Bureau, 4/22, p.21

Auto safety standards outlined by Dr. Brenner (four aspects), 4/29, p.11

Buy American legislation pending in Pennsylvania under fire by Chambers of Commerce, 4/15, p.21

Council of Economic Advisers may revise price-wage guidelines, 6/3, p.41

Defense contract profits to get review, 6/24, p.35

East-West trade, House Foreign Affairs hearings, 3/18, p.37

East-West trade: Solomon tells how U. S. controls, 3/18, p.39

Federal Highway Adm. awards contracts for a prototype safety car, 4/1, p.21

Foreign trade rules need change: U. N. George Ball, 6/17, p.24

Health and safety hearings, industry-government debate, 3/11, p.46 and 6/10, p.20

Highway expenditures, transportation needs, 2/26, p.35

Mineral supply study needs review, Hibbard Jr. report, 1/22, p.24

NLRB, closer congressional supervision may emerge from hearings, 4/1, p.21

NLRB reform sought by industrialists, Zinke-NAM, and Sen. Ervin Jr., 5/29, p.46

Overseas spending curb and a tax increase, views of executives, 1/8, p.11

Pension Commission proposed by Rep. Halpern, 2/12, p.21

Pensioncare, Yarborough bill calls for strict control, 5/13, p.20

Price-wage guidelines, meeting called, 2/5, p.19

Graphite: Aircraft to use graphite composite structures: Forecast of Northrop scientist, 6/24, p.46

Electric arc furnaces spur boom in graphite electrodes, 6/17, p.151

Gray Iron Founders: Industry faces investment for survival, market outlook, 3/4, p.127

Great Britain: Auto firms merge (British Leyland Corp.), 2/5, p.24

Devaluation of pound proving success, economists report, 5/27, p.24

Gas changeover opens market, manufactured gas to natural gas, 4/29, p.24

Grinding, Polishing: Auto brake disc grinding unit reduces costs at Snyder Corp., 6/17, p.82

Combination of ice and abrasive powder excellent for grinding wheel, Soviet engineer, 1/15, p.15

Controlled force grinding ups output, 6/17, p.86h*

Diamond dressing tool, one shot, permits simultaneous grinding, 1/1, p.108h*

Education needed in abrasive grinding, 3/25, p.153

H

Hammer: Hydraulic impact hammer on crane, front end loader, etc. packs powerful punch, 2/5, p.48q*

Hard Core Jobs: See Training

Hardfacing: Hardfacing: Cosmetic for old adds life to new (STEEL Feature), 3/11, p.39

Harvard University: Scientists photograph microwave

radiation using Polaroid film, 6/10, p.23

Health & Education:

In-plant alcoholics are curable: Dr. Fox, Georgian Clinic, 1/15, p.13

Safety rules debate grows, industry-government, 3/11, p.46

Heat Treating & Annealing:

Annealing time of castings cut with new pusher-type furnace, 2/19, p.56d*

Nitrogen inerting for electric annealing furnace, MIF Industries, 1/22, p.27

HERF Steels:

Survey rates HERF die steels, General Dynamics, 4/8, p.64

Highways:

Federal spending outlined, 2/26, p.35

Holemaking: See Drilling, Boring

Holland:

Expansion program, iron and steel producer, 3/11, p.23

Holograms:

Acoustical holograms symposium hears Douglas speaker: 3-D pictures made with sound waves, 1/8, p.37

Boeing experiments: Holography studied in nondestructive testing of bonded assemblies, 5/27, p.90s*

Holograms with depths of field to 6 ft, 1/1, p.31

Honeycombs:

Aluminum honeycomb in production at Hexcel, 2/19, p.56d*

Welded sandwiches, unusual core design (DRC-Double Reverse Corrugation), Langenau Mfg.'s Perrotta reports, 4/15, p.76

Housing:

Westinghouse subsidiary to develop and sell low income housing under federal programs, 5/13, p.20

Hydraulics:

Danly hydraulic press forms rounder truck wheels, 2/12, p.84b*

Hydraulic hammer packs punch, 2/5, p.48q*

I

ITT Research Institute:

Scanning electron microscope (SEM) gives depth of field, 5/13, p.23

Study done on sintered parts, 1/8, p.14

Impact of a Changing Industry:

Die materials—where molecules need muscles, 2/26, p.45

EDM: Its magic turns to money, 3/18, p.45

Coil coaters face problem of success, 5/6, p.42 S-1

Contract shops fight captive trend, 5/27, p.59

Incentives:

USWA-steel industry negotiations start: Collision ahead over incentives? 6/24, p.33

Induction Heating:

Ajax Magnethermic (STEEL Feature): The hot new pace of induction heating, 3/4, p.49

Ajax Magnethermic: Induction slab heating time reduced with heater and ac solid state breaker, 2/19, p.44

GM switches to induction melt furnaces at Saginaw Malleable Iron plant, 2/26, p.24

Induction heater covers broad spectrum...from job shop to design specialist (GE equipment) at Induction Heating & Engineering Corp., handles small and large parts, 5/6, p.52

Industrial Distributors:

Convention speaker: Modern hiring need, 5/27, p.20

Industrial Expansion:

For industrial expansion—revenue bonds may lose edge, tax exemption, 3/18, p.19

Industrial Fasteners Institute: Belford reports unified plant for auto zero defect fasteners, 4/1, p.19

Inspection, Testing:

Automatic scanning cuts helicopter blade inspection time, ultrasonic equipment, 1/22, p.47

Automakers eye Gleason's new hypoid gear tester, 1/29, p.40

Bearing pin inspection automated, 4/8, p.22

Boeing-helicopters: Layout automation speeds inspection, coordinate measuring machines, 2/12, p.69

Cryptanalysis studies failure data from solar battery tests or other coded data, 1/8, p.15

Electrode (rotating disc) checks aircraft engines, 3/25, p.22

Isotopes assay ores passing through a flotation process, Australia, 2/26, p.22

Measurements little influenced by stylus radius and load of instrument, GMR, 5/20, p.23

Microscope (FIM) for watching atoms in action, 6/3, p.23

Photography tests, railroad diesel engines, 2/19, p.47

NDT in-motion radiographs provide good picture, 1/22, p.57†

Scanning electron microscope (SEM), depth of field eases micrograph's interpretation, 5/13, p.23

Scanning electron microscope grades British steel, 6/10, p.24

Ultrasonic scanning uses NC system, 3/4, p.23

Ultrasonic scanning system for weldments uses water-filled probe, 6/10, p.22

Ultrasonic tester portable reduces shutdowns, detects leaks by sounds, 1/15, p.40

Welding surfaces inspection with scanning electron micrograph, 3/25, p.44

Institute of Electrical & Electronics Engineers:

Convention speakers (sonic power, self-testing computer), 3/25, p.22

Institute of Scrap Iron & Steel Inc.:

Annual convention, officers elected, 1/15, p.76

Convention report, Abrams new president: Scrapmen make comeback by building new industry, 1/29, p.61

Increases in proposed freight rates, 3/18, p.20

Story: Ferrous scrap recycling reported at symposium, 4/22, p.113

Instrument Makers:

Gas instrument makers, market report, 5/27, p.125

Instruments: See Inspection, Testing

Instruments & Controls:

2nd half growth, market report, 2/26, p.74

ASTME show, interest in fluidic controls, exhibits, 5/27, p.85

Fluidic circuitry runs gaging machine, Bendix, 4/29, p.23

Fluidics measures air flows, Britain, 6/3, p.22

Vickers (Rhodes): Fluidics need years of application study, 4/22, p.78x*

Insulation:

Ceramic foam insulates 3,000 F, 2/19, p.22

GE uses a fluid bed furnace to remove insulation from electrical equipment, 3/4, p.70

Superinsulators offer efficiency (some commercial fiber insulation name, maker, type), 5/20, p.46

Integrated Circuits: See Electronics

International Material Management Society:

Hallowell (SPS) seminar speaker: Labor's costs forever up.

Capital: Only hope for business, 5/20, p.57

Inventories:

Components, 1st quarter survey, 2/5, p.7

Components, 2nd quarter, 5/6, p.85

Steel mill products, 1st quarter, 3/11, p.33

Iron Ore:

1967 lake ore shipments decrease from year ago, 1/15, p.68

Alabama's ore industry revival urged by USWA, 2/5, p.76

Iron ore pellets cold-bonded, new process, 2/12, p.22

Jap firms may buy Arizona iron ore pellets, from Sovereign Industries, 4/8, p.91

Mexican ore development planned, 1/1, p.146

Mexico's Las Truchas ore development undertaken by government, 2/19, p.20

Pelletizing plants to use carbonate bonding process, Koppers licensed, 4/15, p.23

J

Japan:

Aluminum firm new, Mitsui Aluminum Co. Ltd., 3/11, p.23

Australian firms sought to protect supply of bauxite, 4/29, p.24

Foil mill built for Japanese firm, 1/29, p.19

Inayama (Yawata Iron & Steel) forecasts good business with U. S. despite proposed surtax, 3/11, p.19

Iron works (3) to merge, newly created Keihin Iron Works, 3/11, p.23

Kawasaki Steel, 2nd blast furnace, 1/1, p.32

Machine tool exports rise, report of Ichiwawa, 4/1, p.85

Shipbuilding, world leader, 2/19, p.24

Shipyard built by Nippon Kokan, 4/8, p.23

Ship repairs, Hitachi Shipbuilding and Todd alliance, 5/20, p.23

Skilled worker shortage, 5/27, p.24

Steel export quota system denied, 2/5, p.20

Steel firms may buy Arizona iron ore pellets from Sovereign Industries, 4/8, p.91

Steel industry productivity gain, 3/18, p.20

Steelmakers seek long term deals, 3/18, p.19

Steelmakers: Voluntary quotas? 6/3, p.21

Sumitomo signs license agreement with Eaton Yale to make rubber-tired tractor shovels, 4/22, p.82e*

Toshiba, ferrous diecast parts, 5/6, p.20

Urawata, Fuji merger proposed, 4/22, p.19

U. S. exports to Japan, 5/13, p.91

Jigs & Fixtures:

Adaptable backup plate is holding fixture for NC, aerospace machining, 2/26, p.50h*

Plastic jig improves production, IBM, 2/12, p.23

Job Shops:

Computer system to match job orders to job shop, Siliman developer of centers, 4/1, p.37

EM weld job shop sells cost cutting, 2/19, p.54

Job shop heat treater, handles small and large parts (from job shop to design specialist), 5/6, p.52

Jobs:

How do you really feel about your job? How middle managers handle stress (STEEL Feature), 1/22, p.43

New jobs in your company? Write STEEL, 2/19, p.44

See also Training

John Carroll University:

Seminars for executives of small, closely held companies, 2/26, p.17

Joining:

Adhesive bonds electrodes to steel shanks, 1/15, p.48

Adhesives at Ford fasten diecast letters and model nameplates, 3/18, p.20

Adhesives at Ford, take trim job from fastener makers, 3/25, p.153

Aluminum beads aid bonding C-5 Galaxy floor beams, 6/24, p.54

Brazing time cut on aluminum plate with an aluminum-silicon fluxless process, American Rockwell, 4/22, p.78*

Composites via inertia welding, 1/15, p.13

Diffusion bonding: Primed for production (Gaeinnie, Northrup), 1/15, p.56*

Diffusion bonding, Convair, 1/1, p.31

Diffusion bonding heavy structural components at Convair, 4/15, p.59

Fluxless aluminum brazing used in Apollo, 4/8, p.51

'On engine' induction brazing, Roll-A-Finish tools, 2/5, p.48*

K

Kulumar:

Land of Kulumar (king): Article on steel's fight for survival, 6/17, p.59

L

Labor:

1968—local issues, high price tags, coalition showdown (where bargaining battlegrounds will be—company and union), 1/22, p.48

1968 bargaining: One down, four to go (can settlement, coming copper, aluminum, steel, aerospace), 2/12, p.19

Aerospace firms targeted for tough negotiations, 6/24, p.48

AFL-CIO: IUD-Industrial Union Dept. eyed by UAW, 3/18, p.20

Aluminum settlement with USWA, 6/10, p.20

Aluminum inventory buildup as hedge against possible June strike, 1/22, p.23

Aluminum contract talks started, 4/15, p.19

Aluminum goes upstage while steel waits in wings, 5/13, p.41

Can settlement, USWA, 2/12, p.19

Coalition bargaining headed for KO? AMA speakers, 2/26, p.34

Collective bargaining negotiations and contracts, survey of Bureau of National Affairs, 1/8, p.12

Copper strike, can public forum bring pact? Highlights of White Pine settlement, 2/5, p.37

Copper, Phelps Dodge settlement—unions agreed to separate contracts, 3/25, p.21

Copper pacts with American Smelting, Kennecott, and Anaconda follow pattern set with Phelps Dodge, 4/1, p.20

Copper strike, cost to union (USWA), Abel praises LBJ in resisting Taft-Hartley, 4/8, p.19

Cost-of-living escalator clauses may be answer to inflation for both labor and management: Rees report (Princeton), 5/20, p.24

FMCS study shows settlement rejections cause concern, 4/22, p.22

IAM's Siemiller: Contracts without work stoppage, 3/4, p.19

IAM (Siemiller) urges airlines to pay interest charges of 6% on retroactive pay increases, 5/13, p.19

IAM timetable for aerospace bargaining (table), 6/24, p.48

NLRB reform sought by management, hearings opened, 5/29, p.46

UAW-Local (Detroit) contract changes boost job standards for tool shops, 3/25, p.23

UAW challenges GM diecasting, 6/24, p.20

USWA-steel strikes, government intervention (1949-1952-1956-1959-1965), days struck, 2/19, p.40

USWA-Abel: Man in spotlight for '68, 1/1, p.19

USWA: Abel-Cooper (cover pic): What chance for early steel pact? 2/19, p.37

USWA: Worker—key man in steel talks? 2/19, p.19

USWA: Dues may be steel talks issue, 1/29, p.15

USWA, dues increase more troublesome for smaller firms, 4/22, p.21

USWA locals piqued, shut out of Wage Policy Committee meetings, 2/5, p.19

USWA: Local issues worry Abel and company executives, 5/20, p.37

USWA conference, Atlantic City: Union members tougher to keep in line; Rarick and three other rebels file court action; union member's Bill of Rights, 4/8, p.54

USWA: Abel and Cooper head conferences, New York meetings, 6/10, p.19

USWA: Local issue talks make progress (companies score), 6/10, p.20

USWA steel officials (five firms) warn industry cannot support a 6% wage settlement without price increases, 5/6, p.19

USWA: Republic's Patton and Abel push for quotas of pig iron and steel mill products, 6/24, p.19

USWA supports steel import quota, 5/27, p.20

USWA: Abel faces challenge: Company vs industry bargaining, 5/27, p.19

USWA-steel negotiations start: Collision ahead over incentives? 6/24, p.33

USWA: Allegheny Ludlum talks to its union, 2/12, p.71

USWA-Allegheny Ludlum set timetable on old grievances, 6/24, p.21

USWA-Kaiser share plan retained, 1/29, p.16

USWA: Economics lesson (financial conditions), 4/1, p.19

USWA: Strike and defense fund, 4/8, p.19

Labor Costs:

1968: Will labor costs be offset? 2/26, p.7

Manufacturers' scoreboard: Costs eat up profit gains, 6/10, p.9

SPS's Hallowell Jr.: Labor's costs forever up; Capital: Only hope for business, 5/20, p.57

Labor-Management:

Allegheny Ludlum talks to its union, semiannual meetings, 2/12, p.71

Lasers:

Cold cathode improves laser, 2/5, p.23

Crystal material flashes green light, 1/1, p.29

Device steers laser beams by electrical command signal, 4/29, p.22

Lasers drill tiniest holes, Union Carbide, Korad Dept., 4/29, p.23

Lead, Zinc Markets:

Institute meeting, Montreal—market trends report by Kimberley, 4/15, p.107

Leisure:

Another industry goal, constructive leisure time, 2/5, p.21

Lighting:

Improved lamps pay their way: GE's Christensen, Nela Park, 4/22, p.78a*

Lubricants, Lubrication:

Centralized lubrication system with 21 area control panels, Gary plate mill, 2/19, p.56f*

Journal bearing for nuclear uses process fluid, 6/24, p.62a

Jumbo drums save grease and maintenance costs, Aliquippa Wks., J&L, 2/5, p.48p*

Lubricant for hot extrusion of steel, British probe, 3/4, p.22

Synthetic hydraulic fluid, Pydraul 312, cuts costs at Harvey Aluminum, 4/15, p.78h*

Thin-film lube cools chip's backside, 5/6, p.22

Weirton's costs dive re-using mill roll coolant, 6/10, p.78

M

Machine Shops:

Larger machine shops keep jets

flying (metalworking market trends), 4/22, p.113

Machine Tool Industry:

Aerospace firms, foreign tool interest, 4/1, p.54a*

Cutting tool orders lag, 4/1, p.24

DoD studies centralized machine tool purchase, 1/8, p.12

Foreign competition viewed unfair by machine tool exec, G&Ls-Kraut pic, 1/22, p.91

Foreign machine tools, U. S. market, 1/15, p.77

Foreign toolbuilders turned out to turn U. S. market on (imports from Japan), 5/6, p.38

Guidelines for successful machine tool importing, StarCut Sales Inc. (Biddinger), 1/8, p.32

Imported machines help a builder make a 'systems' line, Fellows Gear-Barbier, 3/18, p.48

Imports concern industry: Dabney (Bullard Co.) tells NMTBA at spring meeting, 3/25, p.19

Japan's tools, autodrom interest, 4/1, p.21

Japan's tool exports up, 1/8, p.16

Metal cutting tools data, orders, shipments, 2/5, p.20

NMTBA calls for end of non-tariff barriers in exporting abroad, 2/19, p.33

NMTBA won't seek import quotas at presentation to Trade Information Committee, 5/13, p.19

NMTBA studies selective tariffs for presentation at Trade Information Committee, 5/20, p.19

NMTBA lifts show exhibit ban, 6/10, p.20

NMTBA's surcharge plan faces cool government reception, 6/17, p.53

Special machines . . . enter new era (envisioned by Cross), 6/24, p.41

Used machine tool market viewed by MDNA's Studley, 1/8, p.57

Used machine tool sales, 1/1, p.29; 2/5, p.20; 5/6, p.87; 6/3, p.21

Machine Tools & Attachments:

Adaptable backup plate is holding fixture for NC machine, cuts aerospace machining costs, 2/26, p.50h*

Adaptive control system for Grumman, Bendix development, 2/5, p.46 and 4/8, p.21

Adaptive control goes into production (Cincinnati's Acramatic control system), 5/29, p.39

Adaptive controls hooked to EDM at Ford, 5/6, p.20

Adaptive Controls top conversation at Design Eng. Show, 5/29, p.34

Computer control for NC slated for customers at Sundstrand, 3/4, p.19

Computer-transfer line marriage envisioned by Ralph Cross, 6/24, p.41

NC computer systems to control machine tools, 4/15, p.19

NC lathe handles big jobs at Monarch, 4/8, p.22

NC on-line computer control system built by Sundstrand, called Omnitrol, 3/11, p.44

Precision lathe, performs cutting operations with true roundness, 4/22, p.82e*

Special machines with computer controls envisioned by Ralph Cross, 6/24, p.41

Spindle attachment for NC machining centers, Heald, 5/13, p.64g*

Spindle (air bearing) supports cantilevered loads, improves Heald turning machine, 1/29, p.18

Transfer machine, double-deck fixtures, 2/12, p.22

Machinery & Allied Products Institute (MAPD):

Stewart before House Ways & Means Committee: Foreign direct investment controls, 4/15, p.60

Machinery:

Machinery market report, Commerce Dept., 1/15, p.77

Vibration measuring seminar, engineers and managers in Chicago, 4/15, p.62

Machinery Dealers National Association:

Studley estimates 1968 markets, used machine tools, 1/8, p.57

Machining:

Aerospace machining costs reduced with adaptable backup plate—a holding fixture for NC machine, 2/26, p.50h*

Cast iron engine blocks grouped for operations, built by W. F. & John Barnes, 2/5, p.48m*

Computer study, prevention of machining inaccuracies, Britain, 1/8, p.13

EDM equipment, Anocut lowers prices, new look, 5/20, p.22

EDM (diemaking): Its magic turns to money, 3/18, p.49

ECM, EDM share spotlight at WESTEC show, 3/11, p.19

EDM, NC married for low cost microhole drilling, 3/11, p.43

EDM hole driller uses NC, 2/19, p.22

EDM machines thin walled tubes, 2/5, p.23

EDM time and electrode savings with silicone fluid, 3/25, p.58

G&L brings 'center' benefits to giant work, 4/8, p.60

Hi-temp alloys draw top interest at AF machinability data center, 4/22, p.49

Microhole drilling unit combines NC, EDM, 3/11, p.43

NC center operates in tandem with existing machines at Service Machine Co., 4/22, p.75

NC turret drill cuts machining time at Dravo on gear racks, 2/26, p.50d*

Profiler line for aerospace, joint effort of Harron, Rickard, and new Cleveland Machine Tool, 2/12, p.24

Special machines—enter new era (STEEL Feature), 6/24, p.41

Tape controlled Jigmils cut machining time of housings, De Vlieg, 5/27, p.90q*

Transfer machine does quick change act (machining rocker-shaft housings), 6/17, p.86f*

Trunnion machine makes covers for laundry unit, 4/1, p.54d*

Ultrasonic, diamond abrasive cutting tool, speed precision machining at Branson Sonic Power, 2/19, p.56q*

Maintenance:

Jetliners, larger machine shops for maintenance, overhaul, repair (market trend), 4/22, p.113

NC maintenance, action program, 4/1, p.54e*

Rearranging worn steam hammers on job without shutdown, Lukens Steel, 3/11, p.46j*

Management Consultants:

STEEL's brainstorming sessions with three management consultant firms: Recruiters look at clients' changing needs, 2/12, p.76h*

Management:

Dead-end job at \$50,000 a year: Report on management succession, 1/8, p.13

Engineers' career plateaus, into management rank, 1/22, p.24

Executive appointments up, study report, 2/19, p.20

Executive compensation, professionals outpace, 6/10, p.60

Executive growth—three tracks to run on (compensation concept) report of Patton, McKinsey & Co., 1/15, p.37

Executive top spots, routes to take (Dr. Jennings), 4/22, p.21

GE: Laissez faire management pays off, Theory X, Theory Y, 3/18, p.41

Managers' attitudes (editorial), 1/22, p.21

Middle managers, how they feel about their jobs, how they handle stress, STEEL Feature, 1/22, p.43

MIS: The new breed of management, STEEL Feature, 6/10, p.65

system promotes middle managers, 3/25, p.21

Purchasing agent — corporate golden boy, 3/4, p.62d*

Social workers with business background, new managers to tackle ghetto training, 6/10, p.21
 Steel worker-supervisor relationships, Harvard and AISI, 4/29, p.21
 Students challenge industry, NICB conference, 6/10, p.24
 Top jobs go to newcomers; base salaries, etc., consultant's survey, 5/20, p.24

Management Systems:
 DIAS — Chrysler's management computer system, 3/18, p.11
 Laissez faire management pays off for GE (Theory X and Theory Y-management assumptions), 3/18, p.41
 MIS: Management information system promotes middle managers, 3/25, p.21
 MIS, The new breed of management, 6/10, p.65
 Test your knowledge of management systems, 1/29, p.36
 Westinghouse — management systems group: Taking the paperwork out of managing (STEEL Feature), 1/29, p.33

Manpower: See Training

Manufacturing Industry:
 Labor costs eat up profit gains: Manufacturers' scorecard (1966-67-68-first quarter), 6/10, p.7

Maritime Studies Center:
 Report outlines steps to update shipbuilding, 2/19, p.80

Marketing:
 Myths of marketing (Black & Decker), editorial, 5/20, p.17
 StarCut Sales: Guidelines for successful machine tool importing (James Biddinger), 1/8, p.32
 Video tape recording system (VTR) at Jones & Lamson: Puts the boss on the road, 5/20, p.43

Marking Metal:
 Flame spraying molten metal through stencil on bar or strip, 6/17, p.22

Marshall Space Flight Center:
 Blaise and Maropis: Ultrasonic wrench system seals tubing connections, 1/15, p.48
 Ultrasonic scanning system for weldments, 6/10, p.22

Material Handling Feature:
 See Getting Goods to Market

Material Handling Industry:
 Pipelining: Industry sees light at end of tunnel (sand handling in foundries, chip removal in machining), 5/13, p.53

Material Handling Equipment:
Air Pallets:
 Air bearing systems, market trends, 2/19, p.79
 Air-Go (Seattle firm) produces air cushion systems, 1/1, p.108c*
 Westinghouse air bearing transfer conveyor system moves heavy transformers, 5/27, p.86

Conveyors:
 Coil handling line automated, Joliet rod and bar mill, 5/27, p.90m*
 Conveyor belt undulates 'snakes' material, 1/29, p.19
 Erie Foundries (GE div.) magnetic conveyor saves \$10,000 a year, removal of ferrous material from sand, 2/5, p.48k
 Spindle conveyor, pails spray painted, 2/5, p.48n*

Robots:
 Automotive springseats processed through two presses with robots, 2/12, p.84s*

Trucks, Gas & Electric:
 Fork liftable pallets formed by polyethylene plastic, 4/15, p.22
 Lift truck floats on air, battery-operated motor and blower, 5/20, p.22

Material Handling Institute:
 Address by Senator Hartke, 3/4, p.17

Annual show report: Profit squeeze continues predicted by Eames (Eaton Yale & Towne), 5/20, p.91

Medical: See Health & Education

Melting:
 Lehigh foundries score with triplex melting, 2/5, p.43
 See also Furnaces

Mergers:
 Editorial: Men and Mergers, 1/1, p.17

Industry's merger game you're already in (STEEL Feature), 1/1, p.69

How much companies cost in '67: Industry-price / earnings ratio paid, 1/15, p.15

Merger pace sets record, manufacturing and mining takes lead, 3/25, p.21

Mergers made or contemplated, managers surveyed, 1/1, p.71

Muller report (Cabinet Committee-Price Stability): Conglomerate merger laws may tighten, 5/20, p.24

Stock replaces cash as means of acquisition, 1/15, p.15

Metal Buildings:
 Pre-engineered metal buildings are warehouses, plants, etc. (don't call them tin sheds anymore), 2/19, p.49

Metal Deposition:
 Cold vapor deposition process used on microcircuits, 1/15, p.15

Electrostatic fluidized bed coater, 2/26, p.22

Gas plating, also called chemical vapor deposition, is practical now in some areas: Jenkin (UGP) speaker, 1/8, p.34

GE's metallidning process license given Arthur D. Little, 6/3, p.44

German researchers process for tin and other soft metal coatings, 4/1, p.23

Silicone carbide (composite) fibers made via fluidized bed, chemical, vapor deposition tech., 3/4, p.47

Metal Finishers:
 Independent job shop metal finishers, number in nation, 6/10, p.129

NAMF report: Platers' profits tied to pollution, plastics, 6/3, p.74

Metallurgy:
 Atmospheric corrosion fatigue studied, NBS, 6/10, p.21

Automatic signalling device shows when steel reaches start of its martensite transformation, USSR, 1/15, p.14

Basic metallurgical research needed by industry: Aaronson (Ford) speaker, 3/4, p.23

Cold roll aids superconducton, 3/11, p.21

Cold work hardening may increase strength of metals, Russian report, 6/10, p.22

Fibers made via fluidized bed, chemical, vapor deposition technique at Battelle, 3/4, p.47

Freezing helps metal studies, knowledge about electronic properties, 1/22, p.26

Metal - polymer composites easily formed, 4/1, p.24

P/M process improves quality of steel, better from scrap than from an ingot, 1/1, p.108y*

Poles try steels with columbium, 6/17, p.21

Superplasticity — closer to production, 4/22, p.19

Tungsten whiskers made by vapor phase growth, 6/10, p.23

Ultrasonics measures residual stress in metal structures, 3/18, p.22

Whiskers add muscle to graphite fiber composites, 2/26, p.22

Metal Powder Industries Federation:

Annual meeting, forecast by Kempton Roll: P/M parts, still competition for conventional type, 4/22, p.51

Metal Treating Institute:

Factors shaping decisions of job shops, market report, 6/24, p.79
 Zero defects prime metal treating target, market trend, 3/18, p.89

Metalworking:

1967 sales and profits, will '68 be improved? 2/19, p.7

1968: What metalworking managers expect in 2nd half, 6/3, p.35

1969 defense spending, metalworking's share, 2/5, p.35

Annual Facts & Figures edition, 3/25, p.63

Industry outlook by product group (cost to outstrip price boosts; profits to lag), 6/3, p.38

Profits—return on new worth, higher sales reported by National City Bank of N. Y., 4/29, p.20

Metalworking Trendline:

After Vietnam — how will metalworkers fare? 4/29, p.19

Air pollution control: Cost of capital investment sky high', 5/27, p.51

Collision ahead over incentives in steel? 6/24, p.33

Copper users face their 'crunch points', 2/26, p.33

Copper industry emerges stronger than ever—not a sitting duck: Hartley (CDA), 4/8, p.49

Financial comparison: Top three in aluminum and steel, 5/13, p.43

Gold rush reality: Somebody must pay (Rundt), 3/25, p.37

Hi-temp alloys draw top interest at data center (AFMDC), 4/22, p.49

How nontariff barriers stymie toolbuilders, NMTBA calls for elimination, 2/19, p.33

Metalworking prices may ride railroad freight rate hike, 6/10, p.57

NMTBA's surcharge plan faces cool reception by government, 6/17, p.53

Path to steel contract winds knee-deep through local issues, 5/20, p.37

Private pensions: Does Washington threaten your company's plan? 4/15, p.51

Stainless producers cry 'halt' to scrap exports, ISIS' Story, Allegheny Ludlum's Andrews pix, 3/4, p.45

Steelmakers hike capital spending in '68, 2/12, p.61

STEEL's Panel of economic consultants, semiannual survey, 4/1, p.35

Mexico:

Development of Las Truchas ore fields by government, 2/19, p.20

Ore deposits planned by consortium, IE, 1/1, p.146

Steel expenditures by industry boosted, 2/19, p.23

Michigan State University:

Dr. Jennings: Route to top executive spot, 4/22, p.21

Mobile Homes Manufacturers Assn.:

Market spurt, 2/19, p.20

Molecules:

Die materials — where molecules need muscles, 2/26, p.45

Motors, Generators:

Virtual motor, fluid power rotary actuator (Dynavector) at Bendix, 6/17, p.79

N

National Association of Purchasing Agents Inc.:

1968 business indicators for 1st half, 1/8, p.11

1968 'uncertain', report, 2/12, p.19

1968 forecast, Business Survey Committee, 5/27, p.19

Business Survey Committee: Steel credit terms too late to cover foreign steel, 4/8, p.19

Convention report: Steel import problems aired, 5/27, p.21

National Bureau of Standards:
 Metallurgist study atmospheric corrosion fatigue, 6/10, p.21

National Coil Coaters Assn.:
 Coated aluminum sales boom, 5/20, p.21

National Foreign Trade Council Inc.:
 Norris advises: U. S. role in world trade balances on export growth, 6/3, p.34

National Industrial Conference Board:
 Foresees no immediate cutbacks after Vietnam, 5/6, p.40

Speaker: Constructive leisure time, 2/5, p.21

Speaker (Cleveland Bank): Surtax 'still in order', 2/19, p.20

Student comments challenge to industry, Kirkpatrick chairman of workforce conference, 6/10, p.24

National Labor Relations Board:
 Congressional probe, evaluation expected, 2/12, p.63

Management mobilizes for NLRB reform; Sen. Ervin Jr. opens hearings, 5/29, p.46

National Machine Tool Builders' Assn.:

Annual meeting report; elects McIver president; five-year show interim may change, 5/20, p.19

Import quotas will not be called for at Trade Information Committee presentation, 5/13, p.19

Import surcharge system plan faces cool government reception, 6/17, p.53

Selective tariffs studied for Trade Information Committee hearings, 5/20, p.19

Show ban lifted, now free to exhibit at other shows, 6/10, p.20

National Screw Machine Products Assn.:

McGinnis comments on auto suppliers and product liability role, 5/6, p.11

Technical conference to introduce new cutting tool material, Baxtron, 2/19, p.19

National Tool, Die & Precision Machining Assn.:

Computerized system for reporting capacity in tool and die shops reported by O. S. Zeidler, 4/1, p.83

Panel discusses solutions to contract shop via captive trend, 5/27, p.59

Stuart O'Neal: Computer (Washington) links member shops with buyers across the country, 5/6, p.19

Nickel:

Chase Manhattan Bank forecasts nickel shortages to persist, 5/20, p.24

TD (thoria dispersed) nickel eyes jets, furnaces, 2/5, p.23

Noise:

Push against noise opens market, 4/8, p.20

Nondestructive Testing:
 Boeing uses holography to testing bonded assemblies, 5/27, p.90s*

Northwestern University:
 Endicott: Graduate starting salaries, 1/8, p.14

Nuclear Power: See Atomic Energy

Numerical Controls:
 Air Force pilot program seeks improved NC operations, 3/18, p.58a*

Adaptable backup plate is holding fixture for five axis NC machine, aerospace firm, 2/26, p.50*

Arthur D. Little report: Management of NC spells growth for toolbuilders, 6/3, p.73

Diemaking: NC speeds the pace, 4/15, p.55

EDM hole driller (jet engine builder) applies NC, 2/19, p.22

EDM, NC married for low cost microhole drilling, 3/11, p.43

Koppy Tool tells . . . how to wade into NC without getting soaked (where systems are compatible to integrate NC into specialized tool shop), 5/20, p.52
NC Auto-Shear, computer directed system at Cincinnati Shaper, 4/15, p.81
NC handles ultrasonic scan, 3/4, p.23
NC center operates in tandem with existing machines; boosts output (Semco), 4/22, p.75
Sundstrand builds on-line NC computer control system (Omnitrol), 3/11, p.44

Numerical Control Maintenance Conference:
Sponsored by ASTME: Action program key to better NC maintenance, 4/1, p.54*

Nylon:
Chrysler: Nylon bushing replaces four auto wiper parts, 2/19, p.56*

Nylon tape used to cover a re-square shear table, at Crucible, 4/22, p.82z*

O

Oceans:
Metal use in marine service lags research, 4/1, p.54h*

Order Processing:
Ruhr Corp. touch tone phones feed facts to computer, 4/15, p.78f*
TV terminals flash order data for O'Neal service center, 6/17, p.86d*

P

Packaging, Containers:
Containers spawn marine transit boom (STEEL Feature), 5/13, p.45
Industry report, U. S. packaging sales (table by material), 5/20, p.93
Pressurized container dispenses aerosols via accordion bag, 6/17, p.21

Paints: See Finishes, Paints

Paper:
Carbonless paper-computer combination, 3/11, p.46k*

Pensions:
Does Washington threaten your company's pension plan? Pensioncare terminology, 4/15, p.51
Yake (Towers, Perrin): Government legislation goes too far, 4/15, p.21
Private pension plans, Yarborough bill asks for strict government control, 5/13, p.20

Phosphatizing:
Phosphatizing system desludged continuously, AM&F's Clear-Pak unit, 2/19, p.56c*

Photography:
3-D pictures made with sound waves, also called sonoptography, 1/8, p.37
Alco Products: Photography develops manufacturing savings (Cusano and Reali report), 2/19, p.47

Pipelines:
1968 outlook in pipeline expansion, 1/15, p.68
Mobile x-ray unit crawls (on wheels) inside cross country pipelines, 6/17, p.87

Piping: Industry sees light at end of tunnel (sand handling in foundries and chip removal in machining), 5/13, p.53

Solids pipeline to carry raw materials, Edmonton, Alta., project, 2/19, p.52

Undersea pipeline gets radiographic weld check, 1/1, p.108f*

Plastics:
Auto plastics, a ten-year forecast, 6/3, p.11
Container markets to use PVC plastic (coffee cans, etc.), 4/22, p.22

PVC (polyvinyl chloride) improved, structural markets: Rucon B process dev. by Pechiney, 6/24, p.79
Ping-ponglike balls float in water tanks to prevent evaporation, 4/22, p.22
Plastic pallets (polyethylene), Pennsylvania firm to mold them, 4/15, p.22
Polymers behave like rock, 4/15, p.22
Reinforced plastics usage, transportation leads, 2/26, p.21
Reinforced plastics, market trend, 3/18, p.90
Warm formed plastic sheets, 5/6, p.22

Plating: See Electroplating, Plating

Plumbing Industry:
Steel covets copper's home plumbing business, 3/11, p.46j*

Pollution:
See Air Pollution
See Water Pollution

Polymerization:
Improved PVC (polyvinyl chloride) aims at structurals, 6/24, p.78

Powder Metallurgy:
Compact powder handled in inert gas, 6/24, p.20
Higher properties seen in powder metal trends, prediction of Pratt at General Dynamics, 4/15, p.78p*

P/M parts: Stiff competition for conventional type (MPIF report), 4/22, p.51

P/M process improves quality of steel, made from scrap rather than an ingot, 1/1, p.108y*

Powder alloys usage forecast, 4/29, p.23
Sintered stainless steel powders used to make high strength structural parts, 5/27, p.90e*

Pre-Engineered Buildings:
Pre-engineered metal buildings, warehouses, plants, etc., (don't call them tin sheds anymore), 2/19, p.49

Premium Engineered Castings:
Alcoa foundry, castings offer strength plus savings, 5/27, p.64

Presses:
200,000 ton closed-die forging press urged for U. S. by Carter, Wyman-Gordon (Russia, France, German size), 6/24, p.24

Beam punching system eliminates need for hole layout, 5/20, p.51

Danly hydraulic press forms rounder truck wheels, 2/12, p.84b*

Danly automated press lines—synchronization: 1 press line=9 different parts, 5/20, p.58

Forming aids are reduction pot production on hydraulic press, 3/11, p.46n*

Isotropic pressing via 16 in. Navy gun, 1/22, p.27

Powder metal press, Cincinnati Sharp's compacting press, 1000-C-10, 4/15, p.82

Precision Metal Products: More power, new shapes from high energy presses, 4/22, p.82d*

Unimation (Ford): Automotive springseats processed through two presses with help of robots, 2/12, p.84s*

Princeton University:
Business Today, magazine, student counterprotest, 5/27, p.17
Prof. Rees: Cost-of-living escalator clauses may be answer to inflation for both labor and management, 5/20, p.24

Production Processes:
Three 'keys' to improved production at Arrow Lock (stainless canteen cups), fluid forming method: tooling technique (urethane wear pads, blank lubrication, graphited steel locating plant, 1/15, p.56a*

Productivity:
LBJ calls cabinet meeting on price stability, 2/5, p.19
Manufacturers' scoreboard (1966-67-68 1st quarter): Labor costs eat up profit gain, 6/10, p.7
Price-wage guidelines for economic stability may be revised, 6/3, p.41

Profits: See Financial

Punching:
Whitney Mfg.: New beam line punctures hole layout punch time, 5/20, p.51

Purchasing Agents:
The purchasing agent: Corporate golden boy, reported by Davis, North American Rockwell, 3/4, p.62d*

Psychiatry:
Dr. MacIver, industrial psychiatric service, U. S. Steel: How middle managers handle stress, how they feel about their jobs, 1/22, p.43

R

Radar:
3-D radar via computer tracks planes over New York area, 5/27, p.22

Radio, Television:
TV terminals (cathode ray devices) flash order processing data for service center, 6/17, p.86d*

Video tape recorder system, Jones & Lamson, other brandnames (competitors), 5/20, p.45

Radiography:
NDT in-motion radiographs provide good pictures: Hopkins at Lockheed-Georgia, 1/22, p.57*
Instant radiography, weld check for huge undersea pipeline, 1/1, p.108f*
Smaller, lighter equipment predicted, 5/20, p.22

Rail Supply Industry:
Market report, 2/5, p.78

Railroads:
Diesel engine manufacturing, photography tests, 2/19, p.47
Freight rate increase fought by scrapmen, 3/18, p.20
ICC rolls back scrap freight rates, 2/26, p.21

Metalworking prices may ride railroad freight rate hike, 6/10, p.57

Trains weighed 'on the move,' 2/26, p.50f*

Railway Progress Institute:
Ashley Gray: Freight car purchasing may plummet, 5/13, p.89

Recruiting:
Koppers recruits via shareholders, 4/29, p.21
Recruiters look at clients' changing needs (STEEL's brainstorming session with three management consulting firms), 2/12, p.76h*

Refineries: See Smelting

Refractory Metals:
Integrated plant processes refractory metals (Union Carbide's Materials Systems Div.), 2/26, p.43

Refractories: Quiet partner in primary metals' adventure, STEEL Feature (impact of a changing industry).

Research & Developments:
Basic metallurgical research need: Ford's Aaronson, speaker, 3/4, p.23

Battelle forecast spending for '68, breakdown, 1/1, p.29
R&D spending in U. S. tops other countries, 1/29, p.16

Research Institute of America:
Tips on long range planning for small firms, 3/18, p.21

Revenue Bonds: See Financial

Robots: See Material Handling

Rolling Mills:
Armco computerized hot strip mill rolls sheet, 4/22, p.82a*

Russia:
Fiat auto plant to have Webb material handling system, 2/5, p.24

U. S. hinders trade growth (Red Bloc's view), what Russia wants to sell to U. S. (chart), 3/25, p.39

Vacuum, slag refine steel, 4/29, p.22 and 6/3, p.22

S

Safety: See Health & Safety

Salesmen:
Cincinnati Milling: How to start a sales force, STEEL Feature, 2/5, p.39
See also Marketing

Sandwich Panel: See Honeycomb

Scrap:
Abrams, president of institute: Convention, market report, 1/29, p.61

Auto scrap shredded for electric furnaces, 5/27, p.23

Automated scrap processing forecast, 2/5, p.23

Ferrous scrap consumption by domestic steel mills and foundries, 1/1, p.154

Ferrous scrap recycling, institute report, 4/22, p.113

How stainless scrap prices climbed, Pittsburgh area (table), 3/4, p.46

Stainless scrap exports worry industry, Washington hearings, 3/4, p.45

Scrap Preheating: See Steelmaking

Screw Machine Products:
Paperwork shuffle buries screw products suppliers, 5/29, p.68
Screw product makers, market report, 1/29, p.62

Service Centers: See Warehousing

Shears: See Cutting, Shearing

Shipping:
1967 lake ore shipments down 8% from year ago, 1/15, p.68
Armco protests foreign trade sub-zone in New Orleans for ship-builders, 4/29, p.19

Containers spawn marine transit boom, 5/13, p.45

Containerized cargoes between East and West Coasts to use rail, discussed with 20 steamship groups, 5/6, p.20

Great Lakes ore season, early opening seen, 2/19, p.70

Trucks—getting goods to market, series, 1/8, p.28

Ships, Shipbuilding:
Bethlehem to build giant container ships, 1/1, p.32
Lockheed Shipbuilding steel processing facility plays dual role in marine field, 4/22, p.78*

Maritime studies, Webb Institute: Report outlines steps to update shipbuilding, 2/19, p.80
Nuclear subs checked for cracks, eddy current device, 6/17, p.23

Shipbuilding industry report, 6/3, p.73

Sintering:
IIITR study sizes up sintered parts, 1/8, p.14

Sintered stainless steel powders, 5/27, p.90e*

Skilled Workers:
Detroit tool and die shops sign contract, more raises, 1/15, p.13
See also Training

Small Business Administration:
Lease guarantees expanded, 1/22, p.24
Urge small firms to seek U. S. business, 5/27, p.23

Small Firms:
Tips on long range planning: Research Inst. of America, 3/18, p.21
Will your firm survive? Editorial, 2/26, p.17

Smelters, Refineries:
Aluminum smelter for Japan, 1/22, p.26
Indian zinc smelter operating, 1/1, p.32
Philippine refinery to treat lateritic ore, 5/20, p.23

Sonic Power:
Sonic power systems may soon compete with electric power in industrial uses, Dr. McMaster and Charles Libby (Ohio State) predict, 3/25, p.22

Space Materials & Developments:
AF to weave spacecraft materials, 3/18, p.24
Electricity cuts sonic boom, heat; use of electrostatic forces, 1/29, p.16
Moon dust made of iron, report of Dr. Sun, Westinghouse, 2/19, p.22
Spaceships - nonmetallic studied, polyimide laminate, 5/13, p.23

Spray Guns: See Finishes

Stainless Steels:
Czech stainless has less nickel, 6/24, p.22
Nuclear market for steel, 1/1, p.31
Plastic coating on stainless at Allegheny Ludlum, temporary pealable (TP) and temporary dissolvable (TD), 4/1, p.49
Platinum upgrades stainless, 2/19, p.22
Sintered stainless steel powders (P/M) licks corrosion structural parts, 5/27, p.90c*
Stainless producers cry 'halt' to scrap exports, government facing controls for nickel and nickel-bearing scrap (W. S. Story and E. F. Andrews pix), 3/4, p.45
Stainless tubing (Ti-Krome) challenges copper for plumbing and heating uses, dev. of Crucible, used at Tubotron, 4/15, p.67

Stampers:
Auto stampers claim 'buck is passed,' who's responsible for government safety standards, 3/4, p.127
Profits squeezed by rising costs, 6/10, p.130

Stamping:
Ability to weld cast iron stamping dies while in press aids Ford, 1/29, p.18

Stanford Research Institute:
To release report on pre-engineered metal buildings, 2/19, p.49

State Tax: See Taxes

Steel Alloys:
AISC approves A572 steels, high strength columbium - vanadium, 5/13, p.22
TRIP steel discloses some drawbacks by Dr. Zackay, developer at U. C., 3/18, p.22
TRIP steel studied by Crucible, 5/13, p.23

STEEL Features:
Adaptive control goes into production (Cincinnati Milling's Acramatic controls), now, the step beyond NC, 5/29, p.39
At Westinghouse, they're taking the paperwork out of managing, 1/29, p.33

Computer time sharing: The booming business of renting seconds, 2/26, p.37

Getting goods to market: Containers spawn marine transit boom, 5/13, p.45

Hardfacing: Cosmetic for old adds life to new, 3/11, p.39
Hot forging goes automatic (cover pic), 1/15, p.33
How middle managers handle stress, cover story, 1/22, p.43
How to start a sales force, Cincinnati Milling, 2/5, p.39
Laissez faire management pays off for GE, theory X-Y, 3/18, p.41
Industry's merger game - you're already in, 1/1, p.69
MIS (management information system), the new breed of managers, 6/10, p.65
Special machines-enter new era, 6/24, p.41
Steel import quotas — for and against: Roche (AISI) and Eckley (Caterpillar Tractor), 4/1, p.43
Steel's fight for survival, King of Kulumar, 6/17, p.59
Steelmaking drafts blueprint for revival (Calumet Steel Div.), 2/12, p.65
The hot new pace of induction heating, Ajax Magnethermic, 3/4, p.49
Truckers tune up for faster runs, getting goods to market (Photo-Wright Bros. plane trucked to Kitty Hawk), 1/8, p.27
USWA: Union members-tougher to keep in line, Atlantic City conference, 4/8, p.53
Video tape puts the boss on the road: Waterbury Farrel (Joe Wood talking), 5/20, p.43

What chance for early steel pact? (Cooper and Abel cover pic), 2/19, p.37
What metalworking managers expect in second half-'68, 6/3, p.34
Steel Haulers: Appointments needed for unloading, 2/26, p.19
Shift to rail vs. truck, 2/26, p.19
Steel Import Quotas: STEEL Feature: For and against (Roche, Eckley), 4/1, p.43
For and against: Ronne (Denmark) and Lumb (Republic)—foreign retaliation views, 4/8, p.21
Lobb (Crucible) and Driscoll (Affiliated Funds) views, 4/8, p.51

Steel Imports: See Foreign Trade

Steel Industry:
1968 capital spending hiked by top three (companies listed), 2/12, p.61
1968 Financial analysis, annual insert, 4/1, p.50a*
1968 shipments forecast by Frank, steel stocks specialists, 1/15, p.13

1977 steel consumption forecast by Myers (U. S. Steel), 3/11, p.21
Article: Steel's fight for survival (King in Land of Kulumar), 6/17, p.59

Armco produces Super Soft steel for artillery shells, 3/4, p.47
Color coding of steel shipments, 3/25, p.19

Cooper-Abel, cover pic: What chance for early steel pact? 2/19, p.37
Credit extension to buyers of strike hedge steel costs industry \$18 million, 5/27, p.20

Extended credit payment terms by steel companies too late to cover foreign steel, NAPA report, 4/8, p.19
Kaiser-Western steel market study, 6/17, p.142

Short steel strike (30 days) foreseen by PAs, 5/6, p.19
Steel executives (Block and Stinson) call for union restraint in coming negotiations, 5/6, p.40

Steel officials (five firms) warn against a 6% wage settlement without price increases, 5/6, p.19
Steelmakers test new profit power, 1st quarter, 4/29, p.7
See also Labor (USWA)

Steelmaking:
Atomic steelmaking-nuclear reactor, Aachen, Germany research: Will atoms steal steelmaking scene? 2/19, p.56a†

Atomic age steelmaking, J&L (Getty) forecast, 6/3, p.19
Behemoth burner heats scrap, 6/24, p.22

Blast furnace aided by axial flow air blower, 1/22, p.26
Blast furnace fueled by coal powder, 1/22, p.27

Blast furnaces output 4,000 tons a day at Bethlehem, Youngstown, Stelco, 2/12, p.84a*

Blast furnace uses more CO to boost iron output, 6/10, p.21
BOF air pollution cut by (French) Irisid-Cafl gas cleaning system, 4/22, p.78n*

BOF, lower purity lime urged in L-D process, 1/22, p.27

BOF process: Dofasco uses Gazal process during last refining step, 4/15, p.78d*

BOF heats: Spectrometer (analysis) improved with tungsten electrode instead of silver, 4/22, p.82t*

Hot metal handling study likely for Labor Dept. as result of Armco, Houston, accident, 1/8, p.12

Ladle addition, fast dissolving ferrochrome alloy, 4/1, p.54d*

Lance injection of fine calcium carbide powder into BOF L/D process prevents slag foaming, ups scrap consumption, 2/12, p.22

Oxygen jet process pilot plant, France, 3/11, p.22

P/M process, better quality of steel from scrap than from an ingot, 1/1, p.108v*

Russians remove slag via vacuum (graphite tube and suction cap), 4/29, p.22

Russia—vacuum, slag refine steel, 6/3, p.22

Scrap preheating: Step toward BOF flexibility, 3/4, p.55

Spray steelmaking spreads its wings, BISRA report, 2/19, p.41
Weirton reuses mill roll coolant, 6/10, p.78

Steel Mill Controls:

Armco computerized hot strip mill rolls sheet, 4/22, p.82a*

Chevrolet computer control system at Saginaw foundry (tapes 'real life' story of each casting), 3/25, p.46

Steel Mills:

Pacific Northwest to have integrated steel complex by early 1969 near Portland, Oreg., 1/1, p.108cc*

U. S. Steel (Gary Wks.) takes wraps off new 84 in. hot strip mill, 5/20, p.55

Steel Mill Products:

Foreign steel into U. S., AISI report, 4/8, p.19
Inventory survey, 3/11, p.33

Kaiser study: Western states receipts, 6/17, p.142

Steel Negotiations: See Labor (USWA)

Steel Service Center Institute: Annual meeting addressed by Morava (effective training), 5/20, p.21

Steel Shipments: Color coding foreseen, used by Fisher Body Div., 6/10, p.20

STEEL's Panel of Economic Consultants: Semianual survey: Forecasters have higher hopes for '68, 4/1, p.35

Storage: Truck cabs, bodies 'filed' until needed, 5/13, p.64a*

Structurals: Diffusion bonding heavy structural components at Convair, 4/15, p.59

PVC (polyvinyl chloride) for structural markets, process of Pechiney, 6/24, p.79

Structural Steel: Bethlehem's RQC carbon steel plate, 5/27, p.85

Fabricated structural shipments, market report, 1/22, p.69; 3/11, p.61

Fabricators compete through diversification, market report, 5/20, p.91
Structural steel takes the big hot zinc galvanizing dip, pictured trash racks at Ala. Bouldin Dam, 2/12, p.76c*

Superplasticity: See Metallurgy

Supersonic Transport: See Aircraft

Surface Treatment: Hardfacing: STEEL Feature, 3/11, p.39

Sweden: Computer controlled plate mill, 3/25, p.24

Systems Line: Imports 'fill in' to make a systems line, Fellows Gear, 3/18, p.48

T

Tape: Nylon tape covers shear table at Crucible, 4/22, p.82z*

Task Force: Fansteel adopts task force concept to promote potential of byproducts, 6/10, p.83*

Taxes:
10% surtax starts second hearings, 1/22, p.23
10% surtax on Congressional shelf, 1/29, p.16
10% surtax, thornier than ever, 2/12, p.7
10% surtax, Sen. Vance Hartke reports (editorial), 3/4, p.17
Surtax bill features, extra 10% plus, 5/20, p.21
Border taxes hit by Stitt, U. S.-Japan Trade Council, 3/4, p.47
Corporate and excise tax legislation faces vote, 2/19, p.20
Investment curb penalizes business, 1/15, p.4
Investment tax credit in jeopardy? 2/19, p.19
Patchwork depreciation leaves many firms cool (cheating on taxes), Joel Barlow, lawyer, report, 2/12, p.70

State tax laws place burden on small business, AMTDA charge, Rep. Willis views, 6/3, p.32
Tax break for social programs panned by Surrey, asst., treasury sec'y, 6/3, p.23

Telephones: Acoustic coupling device for data communications, 1/8, p.14
Touch tone phones unclog data flow at fabricating and machine shops, 4/15, p.78f*

TV: See Radio, TV

Theory X: See General Electric

Titanium: Greer Corp. forms titanium without high heat, 5/6, p.23
Thin titanium extrusions, H. M. Harper Co. operation twiggy, 5/29, p.44

Tool Show: Tool Show issue: Cutting tools—progress 4/22, p.55

Tool & Die Industry: Computerized system for reporting open capacity in shops NTDPMA development, 4/1, p.83
Detroit Tooling Assn. claim local UAW boosts lower skill standards, 3/25, p.23

Die chart at Whitney can slash stock by 50%, 4/1, p.54e*

Independent shop owners in Michigan feel NC overstated, 6/24, p.20

Survey rates HERF die steels (General Dynamics surveys owners of Dynapak), 4/8, p.64

Tools & Dies: Cadmium plate prolongs life of stamping dies, 4/29, p.22
Cast to size dies popular, 3/4, p.24

Tools (Air): Cogsdill Tool Products: Induction brazing fluid system fittings

'on engine' with Roll-A-Finish tools, 2/5, p.48*

Rotor Tool makes its play in air tool market, 1/22, p.50

Tools (Cutting):
Baxtron, new cutting tool material, 2/19, p.19

Baxtron vs. high speed steel tools, du Pont, 3/4, p.19

Coromant's new carbide insert grade, RIP, cuts twice as fast, 4/8, p.22

Cutting tools: Progress unfolds beneath surface (Tool Show Feature and cover story), 4/22, p.55

Ford creates new ceramic cutting tool material, molybdenum added to aluminum oxide powders, 3/25, p.11

Gear cutting equipment, markets, 5/13, p.90

Heating tool when not cutting, advice of Czech workers, 4/1, p.22

Titanium carbide inserts switch to Titan 80 inserts at auto parts shop, 6/24, p.56

Underground shaper cutters, hobbed captively, go 'across board' at Hydra-Matic, soon at Michigan Tool, 5/6, p.62a*

Tooling Techniques:
Three 'keys' to production of stainless canteen cups: Urethane wear pads, blank lubrication, graphited steel locating plate, Arros Lock Corp., 1/15, p.56a*

Training:
Business helps hard-core unemployed: Warner & Swasey, IBM, New Jersey's Bell Lab, 4/29, p.21

Chicago firm trains hard-core unemployed (Ryerson), 6/10, p.72

Cincinnati Milling, how to start a sales force, 2/5, p.39

Cleveland Bd. of Education, job training, school to factory, 1/22, p.24

Cleveland Bd. of Education (Dr. Briggs): The dropout, how to reclaim 'lost' manpower, 1/29, p.38

College, GM outpoint job skill lag: Hydra-Matic's Mr. Ditto, 3/25, p.50

Chrysler-Labor Dept. agreement, training hard core unemployed, 6/24, p.11

Cummins Engine Co. tackles training via programmatic approach, coffee break sessions anywhere there is an ac outlet for projector, 3/4, p.53

Engineer (John Kyle) offers plan for training unskilled personnel, wants to establish a non-profit drafting school, 1/1, p.108u*

General Dynamics, Federal Job development program, for unemployables, Texas, 2/19, p.24

Morava addresses Steel Service Center Inst.: Effective training needs plan, 5/20, p.21

Westinghouse plant in Pittsburgh area for hard-core job training, 6/17, p.21

Transportation:
French plan Hovertrain, suspended on air cushion, 4/29, p.24

Labor critical to mass transit: Siemiller (machinists and aerospace workers), 3/18, p.20

San Francisco, Bay Area tube

work begins, BART trains to traverse, 5/6, p.24

Train between New York and Washington behind schedule due to circuit problems, 4/29, p.20

Truckers tune up for faster runs, getting goods to market (STEEL Feature): old photo—Wright brothers plane 'trucked' to Kitty Hawk, 1/8, p.27

Urban Development study headed by Westinghouse Air Brake, 6/24, p.20

TRIP Steel:
Crucible studied TRIP steel, 5/13, p.23

Dr. Zackay (developer) discloses possible drawbacks, 3/18, p.22

Earl Parker: A long range view of trip steel (researcher with Zackay), 3/25, p.19

Trucks:
Automated system checks arrival, departure, weight, 2/19, p.56h*

Getting Goods to Market:
1. Truckers tune up for faster runs, 1/8, p.27
2. Containers spawn marine transit boom, 5/13, p.45

Steel carriers, appointment for unloading required, 2/26, p.19

Steel hauling trucks, shipments soar, 6/3, p.19

Tubing:
Hofmann plates tubing via automatic lines, 5/27, p.79

New stainless tubing challenges copper (Ti-Krome): Tubotron use for plumbing and heating, developed by Crucible, 4/15, p.67

Pushbutton tube flaring yields leakproof joints at Dynaflare, 5/27, p.90a*

Tungsten:
Tungsten electrodes instead of silver improves spectrometer at J&L, 4/22, p.82t*

Turbines:
Nickel-chrome-iron alloy resists turbine's 1,725 F, 1/15, p.40

U

Ultrasomics:
Automation speeds ultrasonic inspection of helicopter blades, 1/22, p.47

Portable ultrasonic testing (Delcon) reduces shutdown, 1/15, p.40

Ultrasonic test ups assembler-inspectors of valves, 5/6, p.62a*

Ultrasonic wrench system seals flared tubing connections, 1/15, p.48

Ultrasonics measure residual stress in metal structures using two crystals, 3/18, p.22

University of Michigan:
Poll of executives shows: AMA ad agency best, auto pact worst in 1967 business moves, 5/13, p.21

University of Pennsylvania:
Dr. Nanis: Field iron microscope watches atoms in action, 6/3, p.23

University of Pittsburgh:
Dr. Weidenhammer: Nontariff barriers stymie Free World trade, 5/6, p.40

Urban Affairs:
AMA speakers, urban action programs (ghetto), 6/10, p.21

See also Training (jobs)

Used Tools: See Machine Tool Industry

V

Vacuum Melt: See Furnaces

Vapor Absorption System:
Re-used solvent vapors reduce costs, coughs, 3/11, p.46n*

Vibration:
Machinery vibration experts grope for organization, Chicago seminar, 4/15, p.62

Video Tape Recorder:
Ampex developer, today's competitors (brandnames), 5/20, p.45

Video tape recording system helps Jones & Lamson win customers (puts boss on the road). STEEL Feature, 5/20, p.43

Vocational Education: See Training

W

Wage-Prices:
Council of Economic Stability: Guidelines for economic stability of '62 may be revised, 6/3, p.41

Wages:
1968 deferred wage increases coming, Bureau of National Affairs bulletin, 1/8, p.12

European wage practices differ, American firms face, 1/8, p.16

U. S., foreign wages far apart (chart), 6/10, p.83†

Warehousing, Distribution:
John Lobb (Crucible) acknowledges service center know-how, 4/8, p.102

Service Centers battle competition, marketing trends, 4/15, p.108

Service centers in middle of hedge buying, market report, 2/5, p.77

Service centers leave less to do-it-yourselfers, John Jorgensen surveyed, 1/8, p.58

Washtenaw Community College:
Cooperative program with GM's Hydra-Matic Div.: Outpoint job skill lag, 3/25, p.50

Wastes:
Phosphatizing system desludged continuously, AM&F's Clear-Pak unit, 2/19, p.56c*

Water Desalination:
All-aluminum desalting system, Alco tech., 4/1, p.21

Desalinate via bubble-scrubbing, self-cleaning freezing water (Westinghouse dev.), 4/22, p.78p*

Water Pollution:
Billions slated for clean water, Interior Dept. report, 2/12, p.21

CCH (Chicago), estimated spending for state and interstate programs, 3/25, p.21

Federal board pans tax incentives for purchasing antipollution equipment, 4/1, p.20

Indiana steelmakers face deadline

to build waste treatment facilities: U. S. Steel, Inland, Youngstown, 3/18, p.20

Water Treatment:
Water filter, Micro-Carbon treats water, air, plating processes, 4/22, p.82h*

Welded Sandwiches:
Unusual core design opens door to welded sandwiches, DRC (double reverse corrugation), 4/15, p.76

Welding Equipment:
Welding Show issue: Materials probes seek keys to more powerful welds, 3/25, p.41

Airco's Richard Giordana views welding equipment, markets, 5/29, p.67

Welding (Arc):
For submerged arcwelding electrodes—two little ones can whip one big one (Twinarc units), 3/4, p.62a*

Powder compacts welded via TIG process and a mild steel filler metal, 3/18, p.23

Semiautomatic welder outmaneuvers conventional stick electrodes, 1/29, p.37

Welding (Electron Beam):
Auto steering columns EB welded, 4/1, p.24

EB weld job shop sells cost cutting (E. B. Welded Products Inc., Holland president), 2/19, p.54

EB weld saves precious valve at Moog, 3/18, p.22

Electron beam used to repair damaged or worn jet engine blades, 6/10, p.90

Welding (Hydrodynamic):
A new approach to tube welding utilized induction heat and magnetic pulses, 2/26, p.22

Welding (Iron):
Ford aided by welding cast iron stamping dies while still in the press, 1/29, p.19

Welding (Inertia):
Inertia welding to fill wider role, Caterpillar Tractor, 3/4, p.69

Joining composites via inertia welding, 1/15, p.13

Welding (Resistance):
Welder controlled by solid state electronics joins sheet at 140 fpm, 3/25, p.22

World Trade Center:
Port of New York envisions international meeting place of buyers and sellers, 1/1, p.32

XYZ

X-Rays:
Graphite crystal reflects x-rays, 6/10, p.22

Mini x-ray checks welds, 2/5, p.22

Mobile x-ray device crawls (on wheels) inside cross country pipelines, 6/17, p.87

Radiographic check on undersea pipeline welds, 1/1, p.108f*

Tube improves neutron x-rays, 1/8, p.13

COMPANY INDEX

A

AMF Thermatool Inc.:
Robot brain smaller, IE, 1/22, p.67

API Corp.:
Electron beam welding repairs worn jet engine blades, 6/10, p.90

Abbey Etna Machine Co.:
Acquires Abbey-Lombard, 1/15, p.16

Acme Products: See Interlake Steel

Adamas Carbide Corp.:
Auto parts: Switch from square titanium carbide inserts to Titan 80 inserts cut tool costs, 6/24, p.56

Advanced Engineering Laboratories:
Oil well gear for future, hyperbaric compression chambers, 3/4, p.21

Aeroquip Corp.:
Merged by Libbey-Owens, 6/10, p.23

Aget Mfg. Co.:
Unit removes dust from plant atmosphere, IE, 1/1, p.136

Airfloat Corp.:
Air film pallets for lift trucks, 5/20, p.22

Air-Go Inc.:
Produces air cushion systems, 1/1, p.108c*

Airmac Corp.:
Re-used solvent vapors reduce costs, coughs, 3/11, p.46n*

Air Reduction Co. Inc.:
Giordana views on welding equipment, 5/29, p.66
PVC plastic containers may replace metal (coffee cans), 4/22, p.22

Vertical welding unit, IE, 5/6, p.66

AIRResearch Mfg. Co.:
Cobalt alloys resist corrosion, 1/8, p.14

Air-Vac Engineering Co.:
Air operated vacuum source on balancing machine, IE, 3/18, p.66

Ajax Magnethermic Corp.:
Logan, cover pic: The hot new pace of induction heating, STEEL Feature, 3/4, p.49
High frequency motor generator for induction heating, IE, 6/10, p.108
Induction slab heater with ac solid state breaker, heating time reduced, 2/19, p.44
Merging with Combustion Eng., 6/10, p.23

Alan Wood Steel Co.:
Basic oxygen facility, Conshohocken, startup, 3/18, p.24
BOF facility starts at Conshohocken, 6/17, p.24
Open hearth to BOF in 15 days, 4/15, p.98

Alcan Aluminium Ltd.:
Capital expenditures for fabricating plants, 3/4, p.20
Davis warns of excess capacity, 4/22, p.24

Alcan Design Homes Ltd.:
Opens homes plant, 2/12, p.24

Alco Products Inc.:
Photography tests prevent failures in railroad diesel engine, 2/19, p.47

Algoma Steel Corp. Ltd.:
To build wide hot strip mill, 5/20, p.23

Allegheny Ludlum Steel Corp.:
Acquires Goddard Corp., 5/29, p.24

Semiannual meetings: Allegheny Ludlum talks to its union (article), 2/12, p.71

Semiannual meeting, union-management, addressed by steel stock specialist (Frank); and Dr. Fox, alcoholics are curable, 1/15, p.13

Stainless gets all-purpose coat: Pealable plastic coating, TP and TD, 4/1, p.49
USWA settlement, old grievances, 6/24, p.21

Allen Aircraft Products Inc.:
Anodizing equipment, two packaged units, IE, 3/25, p.126

Allen-Bradley Co.:
NEMA rerated integral hp motor, IE, 6/3, p.56

Allied Products Corp.:
Maraglas, epoxy casting resin doubles as adhesive, IE, 3/4, p.107

Allied Research Products Inc.:
Electroforming bath for hotter dies, tests, 3/4, p.21

Allis Co., Louis:
Fan cooled motors, IE, 6/10, p.102
Frame size for Armor line motors, IE, 1/1, p.138

Allis-Chalmers Mfg. Co.:
Merger off with Signal Oil, 1/22, p.24

Alter Co.:
Pure-melt process fragmentizes autos for scrap charge, IE, 5/20, p.69

Aluminum Co. of America:
All-aluminum water desalting system, 4/1, p.21
Castings-premium engineered pay off, 5/27, p.65

Amax Aluminum/Mill Products Inc.:
Coated stock samples, cover pic, 5/6
Prefinished coil with special backer coat, IE, 5/6, p.66

American Chain & Cable Co. Inc.:
Mabbs speaker at Material Management Society, 6/3, p.24
Olson roller conveyor, IE, 4/1, p.62

American Furnace Co.:
Acquired by Singer, 1/15, p.16

American Machine & Foundry Co.:
Phosphatizing system desludged continuously, 2/19, p.56c*

American Magnesium Co.:
Constructs Texas plant, 3/18, p.24

American Metal Climax Inc.:
Amax Aluminum ups sheet capacity, new rolling mill, 5/27, p.23

AMAX Lead & Zinc Div.: Hot dip zinc galvanized structural steel, 2/12, p.76c*
Forms subsidiary, Amax Mineral Sales, to market Mt. Newman iron ore outside Australia, 2/26, p.24

American Meter Co.:
Ultrasonic test for assembler-inspectors of valves, 5/6, p.62a*

American Monorail:
Acquisition by Eaton, 6/24, p.24

American Motors Corp.:
Advertising agency is Wells, Rich, Green Inc., 5/13, p.21

AMX-two seater introduced, 2/19, p.11

Executive changes (Secrest, Meyers), 5/20, p.13

Has AMC turned the corner? Stockers to get report by Chapin, 1/29, p.23

Code: *—Metalworking Edition only; †—Metalproducing Edition only; IE—Industrial Equipment

American Pulley Co.:

Personnel carrier goes 10 miles on one charge, IE, 4/8, p.76
Series of shaft mounted speed reducers, IE, 3/25, p.120

American Pullmax Co. Inc.

Nibbler machine exhibited, 5/29, p.51

American Standard Inc.:

Merger with Westinghouse Air Brake, 6/17, p.24

American Tool Works Co.:

NC ram turret lathe, IE, 5/27, p.108

Amplex Corp.:

Forms Videofile Information Systems Div., 2/12, p.23

Magnetic tape memories form standard line, IE, 1/1, p.126

Magnetic tape recording system for low frequency signals, IE, 4/15, p.79

Unit degausses tape, IE, 6/17, p.122

Amtel Inc.:

Merger agreement with Fenn Mfg., 1/1, p.32

Amtron Inc.:

Electronic system controls adhesive bead, IE, 3/4, p.101

Anaconda American Brass Co.:

Installs strip rolling mill, 5/20, p.22

Anocut Engineering Co.:

Price cut on ECM, 5/20, p.22

Antell, Wright & Nagel:

Recruiting discussed at STEEL's brainstorming session, 2/12, p.76h*

Applied Research Laboratories Inc.:

MXQ spectrometer, IE, 3/25, p.122

Aremco Products Inc.:

Heat cure for Aremco-Bond 515, IE, 1/22, p.72

Arminus Research Corp.:

Financial outlook for '68, 1/8, p.5

Armitage & Co. Inc.:

Device for testing creep or rupture properties, IE, 1/15, p.58

Armcro Steel Corp.:

Advanced Materials Div. new, 2/5, p.21

Advanced Materials Div. offers titanium, 3/11, p.60; 5/6, p.24

Advanced Materials Div.: Titanium surge forecast, 6/17, p.21

Builds West German plant for pre-engineered buildings, 5/20, p.24

Coal powder fuels blast furnace, 1/22, p.27

Computer aids customer design for Speedrack Inc., 5/6, p.40

Computerized hot strip mill rolls sheet, 4/22, p.82a*

Contracts for two grants for water pollution control, 5/27, p.24

Houston, hot metal handling accident, 1/8, p.12

In copper shortage, soft steel used in some applications, 3/4, p.47

Protests foreign trade subzone in New Orleans for shipbuilders, 4/29, p.19

Stainless 17-7 PH for welded sandwich panel, 4/15, p.78

Steel Group headed by Harry Holiday, other profit centers and appointments, 6/24, p.20

Steel strand wire hot dipped in pure aluminum, IE, 4/1, p.56

Todd elected to antipollution post, 6/17, p.21

Armour Abrasives Co.:

Coated abrasive, IE, 3/25, p.138h*

Giant abrasives manufacturing

machine produces wide coated abrasives, 1/15, p.50

Scalloped abrasive disc suited to blending, IE, 1/15, p.58

Strong backing, better cutting add disc life, IE, 2/19, p.66

Arrow Lock Corp.:

Stainless steel canteen cups formed by fluid forming: Three 'keys' to improved production, 1/15, p.56a*

Arrowsmith Tool & Mfg. Co.:

Expander-sizer for hot forming titanium, IE, 3/11, p.51

ASEA Electric Inc.:

High pressure work, extruded aluminum wire, 6/3, p.22

Atlas Chain & Precision Products Co.:

Acquired by Bucyrus-Erie, 1/22, p.28

Atlas Copco Inc.:

Two-stage compressor, IE, 6/3, p.58

Atlas Steels Co.:

Adds degassing to continuous casting, 5/27, p.84

Automated Packaging Corp.:

Autobag Accu-Counter, IE, 5/6, p.68

Automation Development Corp.:

Automatic feeding of tubes, bars, IE, 3/11, p.54

Automation Industries Inc.:

Sperry Products: Eddy current sorts ferromagnetic parts, IE, 1/1, p.125

Sperry Products: Magnetographic unit tests billets, tubing, IE, 2/12, p.86

Avco Corp.:

AF to weave spacecraft materials, 3/18, p.24

Aerostructures Div., fluxless brazing, 1/22, p.25

Lycoming speeds improved piston engine for general aviation, 2/19, p.56g*

Transparent alumina fabricated via hot forging, 1/15, p.14

Avco Economic Systems Corp.:

Vestibule training, preliminary guidance for ghetto employment, 6/10, p.21

B

BMM Inc.:

Combined jolt helps assure dense molds, IE, 6/17, p.116

Babcock & Wilcox Co.:

Century-Detroit hydrostatic bearing on rotary tables, IE, 2/5, p.62

Century-Detroit hydrostatic quill adapts to new or old machine, IE, 5/20, p.71

Ceramic fiber mix, IE, 2/19, p.65

Consolidates and forms power generation div., 6/17, p.75

Rigidizer (liquid) strengthens porous insulation, IE, 1/1, p.137

Supplies extruded shapes for jet engine parts, 4/22, p.78v*

Bailey Meter Co.:

Analyzer checks 'dirt' in fluids, IE, 4/8, p.79

Computerized control systems, market report, 2/26, p.75

Computer sensor notes process liquid level, IE, 1/15, p.63

Flame monitoring units, IE, 2/5, p.62

Baker Bros. Inc.:

Rotary index units handles wrench bodies, IE, 5/20, p.72

Ball Screws Inc.:

Machining operations grouped for cast iron engine blocks, 2/5, p.48m*

Machining rockershaft housings

Ball bearing leadscrews have internal return, IE, 6/10, p.112

Bangor Punta Operations Inc.:
Feco Div. to sell fluid bed furnaces of GE, 3/4, p.70

Bardel Inc.:
NC handles ultrasonic scanning, 3/4, p.23

Barnes Co., W. F. & John:
Machining operations grouped for cast iron engine blocks, 2/5, p.48m*

Machining rockershaft housings with new transfer machine, 6/17, p.86f*

Trunnion machine makes aluminum gear case cover for laundry unit, 4/1, p.54d*

Barnes Engineering Co.:
Temperature chamber, IE, 3/4, p.102

Bausch & Lomb Inc.:
Houston Instrument digital plotter for time sharing, IE, 6/3, p.57

Beaver Precision Products Inc.:
Ball screws fit many applications, IE, 4/15, p.92

Bell Helicopter Co.:
Automatic scanning cuts helicopter blade inspection time, 1/22, p.47

Bell Telephone Laboratories Inc.:
Ceramics produced uncontaminated, 6/24, p.22

Bellows-Valvair:
Arbor press, control squeeze pressure, IE, 6/17, p.129

Bendix Corp.:
Atomic absorption spectrophotometer aids metal analysis, IE, 6/24, p.65

Cordax height gage, improvements, IE, 2/5, p.57

DynaPath NC system, direct computer link, IE, 2/26, p.51

Gaging machine run by fluidic circuitry, 4/29, p.23

Gaging system computer aided. Automation & Measurement Div., IE, 4/22, p.85

Plant to produce disc brakes, St. Joseph, Mich., 1/15, p.16

Portable thickness gage, IE, 6/10, p.100

Virtual motor, a fluid power rotary actuator (Dynavector) dev. by Research Laboratories, 6/17, p.79

Bennett Industries Inc.:
Spray guns oscillate to paint pails on spindle conveyor, 2/5, p.48n*

Berg Electronics Inc.:
Terminal inserting unit maintains accuracy, 2/26, p.50d*

Beryllium Corp.:
Cadmium plating on beryllium-nickel strip extends life of stamping dies, 4/29, p.22

Surface passivation coat for beryllium, 4/8, p.22

Bethlehem Steel Corp.:
Blast furnace, axial flow air blower, 1/22, p.26

Blast furnaces, 4,000 tons-a-day, 2/12, p.84a*

Construction of blast furnace, 35 ft hearth diameter, underway at Burns Harbor, 4/15, p.24

Contract for Burns Harbor complex, 5/13, p.24

Economical grade of quenched and tempered carbon steel plate, RQC-80, 5/27, p.85

Expands Chilean mine, 4/8, p.24

Induction hardening unit for 20 ton rolls, built by Ajax, 3/4, p.51

Lackawanna plant improvement program ok, 3/11, p.23

Binks Mfg. Co.:

Spray guns oscillate to paint pails on spindle conveyor, 2/5, p.48n*

Black & Decker Mfg. Co.:
Editorial: Myths of marketing, Dempster v. p.-marketing, 5/20, p.17

Blaw-Knox Co.:
Consumable patterns (polystyrene) trim casting costs for 23,000 lb auto panel die, 5/27, p.83

Merger with Bullard into White Consolidated, 4/1, p.24

Bliss Co., E. W.:
Mackintosh - Hemphill: Tube straightener refinements, IE, 1/15, p.57

Merged with Gulf & Western, 3/11, p.21

Modernization program, Hastings, Mich., foundry, 4/15, p.23

Press speeds, feed lengths (aerosol can tops), IE, 6/17, p.115

Bliss & Laughlin Industries:
Acquiring TekForm and Poly-Synthetix, 5/13, p.24

Boeing Co.:
AISI 4615 steel for strength, 2/19, p.21

Holography studied in nondestructive testing, bonded assemblies and other structural elements, 5/27, p.90s*

Machine rolls adhesive sandwich, 4/1, p.22

Retrofit of machine tool computers, 6/10, p.22

Vertol Div. (helicopters): Layout automation speeds inspection twentyfold, 2/12, p.69

Boice Gages Inc.:
Computer automates inspection system, exhibited, IE, 4/22, p.92

Borg-Warner Corp.:
Affiliates with Japanese firm, 2/26, p.23

Calumet Steel Div. (STEEL Feature): Steelmaker drafts a blueprint for revival, 2/12, p.65

Boston Digital Corp.:
Digital system for NC tape verification, IE, 2/26, p.51

Branson Instruments Co.:
Refrigerated ultrasonic vapor degreaser, IE, 1/1, p.128

Branson Sonic Power Co.:
Diamond abrasive cutting tool combines ultrasonics to speed precision machining, 2/19, p.56q*

Brew & Co., Richard D.:
Vacuum furnaces for production-testing, IE, 2/12, p.94

Bristol Brass Corp.:
Installs strip rolling mill, 5/20, p.22

Broken Hill Pty. Ltd.:
Ore blending plant schedules, 4/15, p.24

Brown & Sharpe Mfg. Co.:
Hite-Incator height gage, IE, 3/4, p.108

Bruning Co.:
Hydraulic disconnect, effective to 4500 psi, IE, 1/1, p.135

Brush Beryllum Co.:
Builds plant near Delta, Utah, 1/8, p.15

Bucyrus-Erie Co.:
Acquires Atlas Chain, 1/22, p.28

Budd Co.:
Acquiring Gindy Mfg., 6/3, p.24

Builds automatic scanning equipment-ultrasonic inspection of helicopter blades, 1/22, p.47

Strain recorder scans channels, IE, 2/12, p.94

Buffum Associates, Thomas A.:
Recruiting, STEEL sessions, 2/12, p.76n*

Buhr Machine Tool Co.:
Sensors govern tap depth from bosses, IE, 1/15, p.58

Bullard Co.:
Merged into White Consolidated, 4/1, p.24

Bunker-Ramo Corp.:
Freed defines case for computer control, predicts closed loop controls, 6/24, p.20

Bunting Brass & Bronze Co.:
Acquisition possible by National Lead, 4/15, p.23

Burgmaster: See Houdaille

Butler Mfg. Co.:
Builds pre-engineered facility, Pullman-Standard technical center, 2/19, p.49

C

CEJ Gage Co.:
Automatic measuring machine sorts bearing rollers, IE, 6/10, p.100

CF&I Steel Corp.:
Adds to Pueblo Wks. facility, 3/18, p.24

Cadillac Associates Inc.:
Barton: experience no longer salable, 4/1, p.20

Calumet & Hecla Inc.:
Merger approved with Universal Oil Products, 3/4, p.24

Calumet Steel Div.: See Borg-Warner

Cammann Mfg. Co. Inc.:
Adds to line of metal disintegrators, IE, 1/22, p.70

Metal disintegrator, features, IE, 4/1, p.64

Campbell Wyant & Cannon Foundry Co.:
Air filters trap oil, decrease downtime, 5/27, p.85*

Carborundum Co.:
Boron nitride fiber insulation, soft as felt, 5/20, p.46

Mark 10 honing machine, IE, 2/5, p.54

Portable snagging wheel, IE, 6/17, p.130

Resinoid bond diamond wheels job oriented, IE, 3/18, p.68

Scientists conduct tests to evaluate dolomite as means of reducing sulfur dioxide, 5/13, p.22

Carpenter Steel Co.:
Moxon speaker at AISI, "communication is top priority," 5/27, p.74

Carrier Corp.:
Elliott Div.: Computer speeds design job-compressors or turbines, 1/22, p.25

Carus Chemical Co. Inc.:
Alkaline-permanganate compound cleans heat treat scale, IE, 3/25, p.138n*

Caterpillar Tractor Co.:
Blackie forecasts construction equipment markets, 4/1, p.85

Inertia welding to fill wider role, 3/4, p.69

Split shaft turbine, features, IE, 4/8, p.80

Central Steel & Wire Co.:
Auto-Shears provide production speed, accuracy, 2/5, p.48h*

Century-Detroit: See Babcock & Wilcox

Cerro Copper & Brass Co.:
Adhesive bonds electrode to steel shanks, pares EDM setup, 1/15, p.48

Chase Brass & Copper Co.:
Copper wire mill now on-stream for production of phosphor bronze and brass flat wire, Waterbury, Conn., 2/12, p.24

Chemetron Corp.:
National Cylinder Gas: Behemoth burner heats scrap, 6/24, p.22

Chrysler Corp.:
Auto horn part of brake check system, 1/22, p.55

Hard core unemployment, training program in agreement with Labor Dept., 6/24, p.11

Kerigan (Stamping Group): Computer key to better decisions, 5/20, p.21

NC diemaking, 4/15, p.58

New steps in Chrysler car design outlined by Sinclair, chief engineer, technical systems, 3/11, p.11

Cincinnati Lathe & Tool Co.:
Cintiversal, a knee and column milling unit, IE, 1/1, p.132

Controls Co. of America:

Fractional hp motor lines transferred to new plant in Arkansas, 1/8, p.15

Plating rate: 4,000 lb of parts an hour, automatic line, Fremont, O., plant, 2/5, p.48e*

Convair: See General Dynamics

Cooper Weymouth Inc.:

Dual head straightener flattens circular parts, IE, 4/1, p.67

Copperweld Steel Co.:

Ohio Seamless Tube Div.: Trucks

Cincinnati Milling Machine Co.:
Acramatic adaptive control system goes into production, (STEEL Feature), 5/29, p.39

Adaptive control unit revealed at Design Eng. Show, 5/29, p.34

STEEL Feature: How to start a sales force (training with Steps 1-2-3), 2/5, p.39

EDM unit has 39 x 67 in. table, IE, 4/1, p.55

Electrolytic grinder forms carbides, IE, 3/18, p.57

Improved pulse modulators on Cintrojet II EDM equipment, 1/15, p.50

Scanner picks data off die models (cover pic), 4/15, p.55

Machining center has short metal-to-metal time, IE, 5/29, p.49

Water base fluids for heavy jobs, IE, 5/13, p.66

Cincinnati Shaper Co.:
Auto-shears built for Central Steel & Wire, 2/5, p.48h*

NC auto-shear, computer directed system, 4/15, p.81

Cincinnati Sub-Zero Products Inc.:
Production chiller, IE, 3/4, p.98

Clark Equipment Co.:
Air cushion moves transformer, 2/5, p.22

Buys Stacatruc Ltd., 4/29, p.24

Lift truck features, IE, 4/8, p.78

Clark Metal Products Co.:

Fine blanking die electrodes are EDM'd, 3/18, p.49

Fine blanking halves gear costs, 3/11, p.22

Cleerman Machine Tool Corp.:
Tool changer, 3-axis NC, IE, 2/5, p.49

Cleveland-Cliffs Iron Co.:
1968 iron ore prices, no change, 2/5, p.68

Cleveland Machine Controls Inc.:
Adjustable speed drive accepts input from process controller, IE, 3/25, p.127

Clevite Corp.:
Pocket-sized instrument gages surface finish, IE, 6/17, p.129

Standardized hydrophone components introduced, 1/1, p.108cc*

Cogsdill Tool Products Co.:
Induction brazing of fluid system fittings performed 'on-engine' with Roll-A-Finish tools, 2/5, p.48r*

Colt Industries:
P&W adds machining center, VMC 750, IE, 4/22, p.55

P&W swarf mill adds four axis, IE, 1/15, p.60

Combustion Engineering Inc.:
Acquires three companies, 5/27, p.23

Acquiring Ajax Magnethermic, 6/10, p.23

Commander Mfg. Co.:
Multiple spindle head, IE, 4/22, p.87

Communications Technology Corp.:
Hand instruments aids soldering, IE, 2/5, p.54

Concord Electronics Corp.:
Video recorder, IE, 3/11, p.52

Continental Can Co.:
Acquisition sought outside packaging industry, 5/27, p.24

Aerosols dispensed via accordion bag, 6/17, p.21

Controls Co. of America:
Fractional hp motor lines transferred to new plant in Arkansas, 1/8, p.15

Plating rate: 4,000 lb of parts an hour, automatic line, Fremont, O., plant, 2/5, p.48e*

Convair: See General Dynamics

Cooper Weymouth Inc.:

Dual head straightener flattens circular parts, IE, 4/1, p.67

Copperweld Steel Co.:

Ohio Seamless Tube Div.: Trucks

checked via automated system for arrival, departure, weight, 2/19, p.56h*

Covel Mfg. Co.:
Grinder features, IE, 1/29, p.45

Crane Co.:
Fiberglass reinforced plastic in packaged bathroom modules, 3/18, p.90

Cross Co.:
Ralph Cross: Special machines enter new era (STEEL Feature), 6/24, p.41

Crucible Steel Corp.:
Acquisition plans, merger with Kidde not scheduled, 6/24, p.24
Common stock redemption held by Hunt Foods, 4/22, p.21

Details price action on stainless items, Syracuse Div., 4/15, p.97

Flat rolled stainless, IE, 4/8, p.80

Lobb (at annual meeting): How to revitalize a company, 1/18, p.16

Lobb: Acknowledges service center know-how, 4/8, p.102

Merger talk with Whittaker, 4/22, p.21

Nylon tape covers a resquare shear table, 4/22, p.82z*

Signs a no-strike deal with USWA, 5/13, p.19

Stainless tubing (Ti-Krome) developed for plumbing and heating, challenges copper, 4/15, p.67

TRIP steel studied, 5/13, p.23

Cummins Engine Co.:
Cummins tackles training via programmatic approach (coffee break training sessions), 3/4, p.53

Curtiss-Wright Corp.:
Induction heaters: The load—7 ton billets, built by Ajax, 3/4, p.51

Cutter-Hammer Inc.:
Acquiring Duran Mfg., 5/6, p.24
Contract award from Bethlehem for Burns Harbor complex, 5/13, p.24

Design computer control system for Chevrolet foundry, 3/25, p.46

Pedal switch treadle operated, IE, 4/1, p.56

Thayer filling scales, fluidics applied, 3/25, p.136

Cybermetals Corp.:

Newly formed, 5/27, p.24

Cyclops Corp.:
Merger with Sawhill Tubular, 4/29, p.24

Universal Cyclops alloy (Unispan 36) exhibits low thermal expansion, IE, 4/15, p.82 and 6/17, p.116

I

Dake Corp.:
Hydraulic press blanks at high speeds, IE, 1/8, p.38

Danly Machine Corp.:
Hydraulic press to Firestone Steel Products, IE, 2/5, p.50

Hydraulic press forms rounder truck wheels, 2/12, p.84b*

Scientific computer gives many benefits (IBM 1130), 5/27, p.63

Synchro-Matic automated press-line built for French auto plant, 5/20, p.58

Davey Compressor Co.:
Rotary compressor, IE, 1/29, p.42

Delcon Div.: See Hewlett-Packard

Detroit Broach & Machine Co.:
Negative rake tooling productivity 'secret', IE, 4/8, p.82

Robot loads, counts, flags dull tools, IE, 5/27, p.98

Detroit Tap & Tool Co.:
'Outboard' roll holders work against a collet, IE, 1/8, p.42

DeVilbiss Co.:
Electrostatic hand gun, IE, 4/8, p.74

DeVlieg Machine Co.:
Microbore Div. special boring bar

reduces tool changes, IE, 5/27, p.109

Milling cutter uses disposable tips, IE, 2/19, p.59

Tape controlled Jigmils cut machining time of housings, 5/27, p.90d*

Diamond Machine Tool Inc.:
Wide bed press for large sheet work, IE, 3/25, p.138f*

Dielectric Products Engineering Co.:
Merged into Sola Basic, 5/6, p.24

DoAll Co.:
Laser interferometers calibrate machine tools, IE, 1/1, p.137

Dodge Mfg. Corp.:
Design pares size of worm gear reducer, IE, 3/4, p.111

Dominion Foundries & Steel Ltd.:
Another first in steel, Gazal process during last refining step in BOF, 4/15, p.78d*

Contracts for blast furnace turbo-blower facility, 5/20, p.23

Sherman: Antidumping steel, steelmakers see results, 2/26, p.23

Douglas Aircraft Co.:
Metherell (research) disclosed: 3-D pictures made with sound waves, speaks at symposium on acoustical Holography, 1/8, p.37

Dow Chemical Co.:
Beryllium scrap recycled, casting and rolling procedures, 6/3, p.23
Chlorinated vapor degreasing solvent, 5/13, p.62a*

Degreasng solvent ups allowable exposure level, 4/22, p.78x*

Expanding facilities, Ark., 2/12, p.24

Dow Corning Corp.:
Accessories evaluate wear, LFW-1 testing machine, IE, 4/15, p.80
Silicone fluid for EDM, 3/25, p.58

Dravo Corp.:
Jap firms may buy Arizona iron ore pellets, Dravo prepares report, 4/8, p.91

NC turret drill cuts machining time, 2/26, p.50d*

Drillmation Co.:
Shuttle machine for construction type equipment, IE, 5/6, p.68

Ducommon Inc.:
Manufacturing stressed in profit planning, 5/13, p.64b*

Dynaflare Industries Inc.:
Pushbutton tube flaring yields leakproof joints, 5/27, p.90a*

Dynatech Corp.:
Plug-in accessories on welding system, IE, 1/1, p.139

Du Pont de Nemours & Co. Inc., E. I.:

Baxtron, new cutting tool material, 2/19, p.19

Baxtron, micrograin solid tooling material, vs speed steel tools, 3/4, p.19

E

Eastman Kodak Co.:
Markets adhesive which bonds electrodes to steel shanks, 1/15, p.48

Turner: Industrial radiography on move, 5/20, p.22

Eaton Yale & Towne Inc.:
Acquires Fawick, 1/1, p.32

Acquires American Monorail, 6/24, p.24

Adds lift trucks, rider, tractor, IE, 6/17, p.126

Automatic's WRT Transporter Reach Stacker, and FE Docker, IE, 4/8, p.71

Editorial: How one company plans, 5/6, p.17

Lift truck glides on air and carries battery-operated motor and blower, 5/20, p.22

Sumitomo (Japan) to make rubber-tired tractor shovels, license agreement, 4/22, p.82e*

Windt: Growth through capital expenditures, market growth by 1972, 4/15, p.21

Ekstrom, Carlson & Co.:
Machining center with tape selection of tools, IE, 5/27, p.95

Electro-Nite Co.:
Portable pyrometer, IE, 1/1, p.127

Electron Beam Corp.:
EB welder pumps down in 8 minutes, IE, 2/5, p.49

Electronics & Alloys Inc.:
Photographic microscope, depth with lighting trick, IE, 4/1, p.56

Electrotolls Inc.:
Silicone EDM fluids, supplier, 3/25, p.58

Elliott Div.: See Carrier Corp.

Elwell-Parker Electric Co.:
Electric forklift, performance vehicle, IE, 6/17, p.124
Forklift handles coils, IE, 6/10, p.102

Engler Instrument Co.:
Hour meter design, IE, 3/25, p.134
Resettable odometer fits various vehicles, IE, 2/5, p.57

Enterprise Machine Tools Inc.:
Offers lathe from stock, IE, 5/27, p.96

Equitable-Higgins Shipyards Inc.:
Jap contract to build floating barge containers, 4/29, p.20

Erie Foundries Div.:
Magnetic conveyor saves GE \$10,000 a year, 2/5, p.48k

Eriez Magnetics:
Ceramic magnet has on-off control, IE, 6/17, p.128
Magnetized filter mesh, wet separator, IE, 1/22, p.67

Ethyl Corp.:
Constructs \$4 million aluminum extrusion plant near Carthage, Tenn., 2/19, p.24

Eubanks Engineering Co.:
Cards program coil winding unit, IE, 1/29, p.42

Executive Jet Aviation Inc.:
Half interest acquired by U. S. Steel, Burlington Industries, 6/17, p.21

Ex-Cell-O Corp.:
Acquires Greenlee Bros., 4/15, p.23

Michigan Tool Div.: Unground shaper cutters (hobbed) soon available, 5/6, p.62a*

Michigan Tool unit rolls pinions and sun gears for Ford, 4/15, p.11

Executive Register Inc.:
Career plateaus for engineers, management ranks, 1/22, p.24

F

FMC Corp.:
Vibratory parts feeder, Syntron Div., 2/19, p.63

Fafnir Bearing Co.:
Instrument bearings, new series, IE, 1/1, p.128

Merges with Textron, 1/22, p.28

Fairchild Camera & Instrument Corp.:
Precision Metal Products: Presses-high velocity forming (pic-titanium propeller, gray iron flywheel for auto), 4/22, p.82d*

Falconbridge Nickel Mines Ltd.:
Builds iron ore pellet plant, Sudbury area, 2/12, p.24

Plans multimillion dollar nickel mine and plant in Dominican Republic, 5/6, p.20

Fansteel Metallurgical Corp.:
Adopts task force concept to promote potential of byproducts, 6/10, p.83*

Buys DuPont's patents in field of dispersion strengthened metals, 1/29, p.20

Cladding system to protect interior of stainless vessel from corrosive effects of liquid alkali metal, 6/10, p.86
TD (thoria dispersed) nickel, 2/5, p.24

Farrand Controls Inc.:
Digital readout system, IE, 3/25, p.138z*

Lathe readout system, IE, 5/29, p.51

Fastener Engineers Inc.:
Wire drawing unit with integral payoff reel, IE, 3/11, p.56

Fastener Licensing Associates Inc.:
Markets anticorrosion process for steel producers, 6/24, p.22

Fawick Corp.:
Eaton Yale & Towne may acquire, 1/1, p.32

Federal-Mogul Corp.:
Acquires Metal Removal and its Puerto Rican affiliates, 2/19, p.24

Federal Press Co.:
Heavy duty presses, IE, 6/10, p.113

Fellows Gear Shaper Co.:
Barbier: Imported machines help a builder make a 'systems' line, 3/18, p.48

Injection molding machines have reciprocating screws, IE, 5/27, p.105

Femeo Inc.:
Radio remote control system for cranes-hoists, IE, 2/19, p.64

Fenn Mfg. Co.:
Merger agreement with Amtel, 1/1, p.32

Fife Corp.:
System centers strip electronically, IE, 2/19, p.59

Filtfilter Corp.:
Water filter—Micro-Carbon, treats water, air, plating, 4/22, p.82h*

Firth-Loach Metals Inc.:
Acquisition by Howmet approved, 1/15, p.16

Firth Sterling Inc.:
Acquired by Teledyne, 2/26, p.24

Fischer & Co., H. G.:
Electrostatic reclaiming system for porcelain frit, IE, 1/22, p.68

Flex-Kleen Corp.:
Adds standard panel dust collectors, IE, 2/12, p.92

Flick-Reedy Corp.:
Compressed air dryers work by refrigeration, IE, 5/13, p.67

Ford Motor Co.:
1969 model, Econoline van and club wagon, 2/19, p.13

Aaronson, researcher, cites need of basic metallurgical research (winner of Mathewson Gold Medal), 3/4, p.23

Adaptive controls for EDM, making dies for hood outer panels, 5/6, p.20

Adhesives to fasten diecast nameplates and lettering, 3/18, p.20

Adhesives take trim job from fastener makers, market report, 3/25, p.153

Aluminum strike hedge sought, 1/8, p.12

Ceramic tool material reported by Dr. Humenik, 3/25, p.11

Fastenermakers must provide spectroanalysis of coils, Q101 Appendix E brochure describes quality control steps for '69 model parts, 1/29, p.15

Gear rolling-pinions and sun gears at Transmission & Chassis Div. (Michigan Tool Machine), 4/15, p.11

Hot forging operations, cover pic, and STEEL Feature, Canton, Ohio, 1/15, p.33

Knudsen elected president, 2/12, p.21

Knudsen president, will other GM execs follow? 5/20, p.11

Lincoln-Mercury Continental Mark III, spring entry, 2/19, p.11

Lincoln-Mercury private showings, marketing to the affluent, 3/4, p.20

Mercury, 1969 model, 3/4, p.11

NC diemaking via scanners, 4/15, p.55

Solid state circuitry for '69 models, 6/10, p.60

Sponsors steam engine study, jointly with Thermo Electron, 3/25, p.24

Stratified charge engine design, fuel economy, Ford Combustion Process, 1/8, p.17

Turbocharged Indy V-8 engine, 5/27, p.11

Unimate robots help process sears. Dearborn frame plant, 2/12, p.84*

Welds cast iron stamping dies while still in press, aids Metal Stamping Div., 1/29, p.18

Foster Wheeler Corp.:
'Fast breeder' generators studied, with GE, 3/11, p.24

Fuller Co., H. B.:
One component epoxy, IE, 6/24, p.64

Fulton Iron Works Co.:
Acquires Ferracute press lines, 6/10, p.23

Furnas Electric Co.:
SCR firing, one drive advantage, IE, 2/19, p.60

Fusion Inc.:
Paste applicator gun, IE, 4/22, p.86

G

G.R.T.L. Co.:
New venture of Union Carbide and PPG (glass reinforced plastic sheet), 1/22, p.25

Gamma Engineering Ltd.:
Continuous caster keynotes simplicity (joint operation with Lake Ontario Steel), 6/3, p.43

Garlock Inc.:
Acquiring Alling-Lander, 1/8, p.15

Garrett Corp.:
Titanium formed without high heat, 5/6, p.23

General American Transportation Co.:
Plastics div. sold to U. S. Steel, 3/11, p.24

General Dynamics Corp.:
Convair expands uses for diffusion bonding, heavy structurals, 4/15, p.59

HERF die steels, Electro Dynamic surveys owners of its Dynapak machines, what materials are most popular, 4/8, p.64

Pratt predicts: Higher properties seen in powder metal trends, 4/15, p.78*

General Electric Co.:
Article: Theory X and Y—Laissez faire management pays off at chemical processing plant, Mt. Vernon, Ind., 3/18, p.41

Advanced engines pose formidable challenges in materials: Lawrence Wilbers, Aircraft Engine Group, 4/15, p.78*

Boring bars in small diameters, Carb-O-Lock line, IE, 2/12, p.90

Christensen (Nela Park): Improved lamps pay their way, 4/22, p.78*

Closed Circuit TV: Video recorder an instruction tool, IE, 3/25, p.134

DC motor features, IE, 1/8, p.42

Diamond thermistors effective to 650 C, IE, 3/18, p.58

Dr. Leslie Cook speaker at Design Eng. Show, long-range forecasting emphasized, 5/29, p.35

Ferrous diecasting facility for Cleveland area, 6/17, p.21

Fluid bed furnace removes insulation from electrical equipment, 3/4, p.70

Generators studied jointly with Foster Wheeler, 'fast breeder', 3/11, p.24

IDS-Integrated Data Store efficiency, uses single file, 3/18, p.23

Induction heaters-electronic made for Chicago heat treat firm, 5/6, p.52

Magnetic removal of ferrous material from sand, Eliez-Trowbridge Trough Conveyor, 2/5, p.48*

McCleary: Growth in use of standard languages as NC is installed, 4/15, p.19

Metallicizing process license to Arthur D. Little Inc., 6/3, p.44

Motors for pumps, business machines, IE, 5/27, p.100

NC machining centers, giant parts, built by Ingersoll, 2/26, p.24

Prices up on motor, controls, 4/8, p.24

Silicone rubber coating for incandescent light bulbs, IE, 3/11, p.53

Thin-film lube cools backside of chip, 5/6, p.22

Time sharing computer, lectures called TUTOR, 2/26, p.41

Time sharing computer, drawings go direct to NC tape, 4/8, p.20

Virgil Day: Business faces a dichotomy in future labor force (both low paid, unskilled, and high paid-highly skilled), 4/15, p.21

See also Erie Foundries Div.

General Monitors Inc.:
Explosionproof probe spots combustible gases, IE, 1/1, p.135
Portable gas detector, IE, 2/19, p.60

General Motors of Canada Ltd.:
Bargaining deadline with Auto-Workers, tag relief system wanted (rest and washup periods), 4/1, p.20

General Motors Corp.:
1968 capital spending, \$1 billion, forecast, 2/19, p.19
1969 models: Pontiac Grand Prix, "B" and "C" body cars, new materials, 3/4, p.11

Bramblett (labor relations) predicts UAW pressure for inverse seniority, 3/18, p.19

Chevrolet's Saginaw foundry: Computer controls tape 'real life' story of each casting, 3/25, p.46

Cole president; new Planning Group headed by Kintigh, 5/20, p.13

College (Ann Arbor) and Hydramatic Div. outfit job skill lag, cooperative program, 3/25, p.50

Color coding steel shipments, 6/10, p.20

Computer checks axle assembly, Chevrolet plant, 3/4, p.22

Computer controlled transfer line-35 station machine, Chevy Buffalo axle plant, shipped by Cross, 6/24, p.42

Engines rated (gas, electric, new Stirling), 6/10, p.11

Hydra-Matic Div. to install warm forming operation to produce pinion blanks, 4/15, p.13

Hydra-Matic Div.: Underground shaper cutters go 'across board', 5/6, p.62a*

Induction melting furnaces to replace coke fired cupolas at Saginaw Malleable Iron plant, 2/26, p.24

New Departure-Hyatt: Air bearing concepts, 3/4, p.95

New Departure-Hyatt:

Air bearings one cure for problem environments, 4/8, p.56

Oldsmobile: Bolts inspected at 10,000 an hour on new electronic-magnetic comparator system, 1/22, p.23

Oldsmobile: Eddy current comparator checks fastener hardness, 3/18, p.89

Plating switch to sodium zincate from cyanide, pollution control, 2/26, p.22

Pontiac to use plastic bumper, of Bickford Div. (NumeriServ), 1/15, p.11

UAW challenges NC diemaking program, 6/24, p.20

General Precision Inc.:
Librascope: Cold vapor deposition process for microcircuits, 1/15, p.15

General Precision Equipment Corp.:
Merges with Singer, 4/15, p.23

Georgetown Steel Corp.:
Buys Concast continuous casting unit, 6/3, p.24

Giannini Scientific Corp.:
Weld surfacing process new, PIG method, IE, 4/15, p.82

Giddings & Lewis Inc.:
Giant machining center (article) built at Kaukauna, Wis. plant (ice), 4/8, p.60
Giant machining center exhibited, Bickford Numericenter, 1/29, p.18

Gilmore Steel Corp.:
With Midland-Ross, an integrated steel complex planned for Pacific Northwest, 1/1, p.108cc*

Given International:
Horizontal mill adapts to vertical operation, IE, 4/15, p.86

Glasrock Products Inc.:
Acquires Findlay Refractories, 5/6, p.24

Gleason Works:
Hypoid gear tester to be unveiled, eyed by automakers, 1/29, p.40

Gould Marathon Battery Co.:
Formed through merger, 5/20, p.22

Graham Transmissions Inc.:
Variable speed drive, fast response, IE, 4/1, p.65

Grangesberg Co.:
Iron pellets are cold-bonded, new method, 2/12, p.22

Granite City Steel Co.:
Acquiring Bull-Moose Tube, 5/6, p.24

Greenfield Press & Machine Co.:
Low tonnage presses, IE, 2/26, p.54

Greenlee Bros. & Co.:
Acquired by Ex-Cell-O, 4/15, p.23

Gries Reproducer Co.:
Adds two types of molded nylon fasteners, IE, 1/1, p.137

Grimm & Co., W. T.:
Stock is favorite in merger deals, 1/15, p.15

Gripall Corp.:
Laminator-rewinder, IE, 3/18, p.62

Grob & Tesker Corp.:
Thread roller, 120,000 lb possible, IE, 1/15, p.57

Grotnes Machine Works Inc.:
Pipe expander, IE, 6/17, p.118

Grumman Aircraft Engineering Co.:
Adds Bendix adaptive control system, 2/5, p.46

Adaptive control system for machine tools dev. by Bendix, 4/8, p.21

Guild Metal Joining Equipment Co.:
Shearing-welding unit is portable, IE, 2/5, p.58

Gulf & Western Industries Inc.:
Merger of Bliss extends plastics reach, 3/11, p.21

Gulf General Atomic Inc.:
Magneform, in pilot production, 3/4, p.21

H

H.E.S. Machine Tool Inc.:
Swing lathe designed for operator efficiency, 1/8, p.40

H & H Wilson:
Moving bridge mill for small parts, IE, 2/5, p.60

Hardman Inc.:

Templates guide adhesive dispenser, IE, 1/22, p.68

Harnischfeger Corp.:

Power sling rotates big loads, IE, 6/17, p.122

Harper Co., H. M.:

Thin titanium extrusions, operation Twiggly research project, 5/29, p.44

Harris Mfg. Co. Inc.:

Portable (large-size) metal treating freezer, IE, 5/20, p.71

Harron, Rickard & McCone Co.:
Profiler line for aerospace, joint effort with new firm, 2/12, p.24
Profile mill, building block design, IE, 3/4, p.102

Harsco Corp.:

Acquires Manganese Steel Forge, 5/13, p.24

Harvey Aluminum Inc.:

Synthetic hydraulic fluid cuts costs, Pydraul 312, 4/15, p.78h*

Harvill Mfg. Co., H. L.:

Automatic metal dispensing furnace, IE, 3/25, p.138h*

Heald Machine Co.:

Controlled force grinding ups output, 6/17, p.86h*

Spindle unit doubles NC machining, 5/13, p.64g*

Two spindle attachment, IE, 5/27, p.108

Heppenstall Co.:

Aircraft sway brace form makes its own die cavity, cover pic, 2/26, p.45

Cooper: Tips on selecting die materials, 4/22, p.78z*

Tong mechanism replaceable in minutes, IE, 3/25, p.127

Hevi-Duty Electric: See Sola Basic

Hewlett-Packard Co.:

Computer cuts time share costs, IE, 6/3, p.53

Delcon portable ultrasonic tester, 1/15, p.40

Hexcel Products Inc.:

Aluminum honeycomb combines with adhesive, 2/19, p.56d*

High Voltage Engineering Corp.:
Electronic lens 'writes' transistors with ion beam, 4/29, p.23

Hitec:

Acquisition plans for Wickes Industries, 3/4, p.24

Reinforced plastic usage in '68 foreseen by Holt and Welch Defense Products Div., 2/26, p.50a*

Hofmann Industries Inc.:

Acquires Consolidated Metal Products, 6/17, p.24

Plates tubing via automatic lines, 5/27, p.79

Holden Co., A. F.:

Detergent cleaner for metals, IE, 6/17, p.119

Furnace requires little space, IE, 5/27, p.98

Holland & Sons Inc., J.:

Custom console cleaning-plating system, IE, 6/10, p.108

Honeywell Inc.:

1970 forecast, computers will talk to plant lines, 2/19, p.56g*

Business equipment sales-earnings report, 5/6, p.85

Corning Glass jointly develops fluidic fuel control systems for turbine engines, 2/26, p.24

Exhibits disk packs, data storage units, IE, 2/5, p.50

Computer for control, scientific jobs, IE, 5/29, p.49

Forms Computer & Communications Group, 4/22, p.24

Joins race to oust keypunch, new device is Keytape, 2/26, p.73

Servo Potentiometers, IE, 3/18, p.57

Hooker Chemical Corp.:
Acquires Udylite, 1/8, p.15
Epoxy primer offers four colors,
IE, 1/1, p.126
Perma-Patch epoxy, IE, 1/1,
p.140
Predip secret of black phosphate
coating, Parker Div., IE, 1/22,
p.68
Two alkaline cleaners for spray
washers, IE, 6/17, p.124

Hoover Ball & Bearing Co.:
Series of stamped flange bear-
ings, IE, 3/18, p.58

Houdaille Industries Inc.:
Burgmaster drill processes narrow
parts, IE, 3/11, p.52
Burgmaster shows eight spindle
machining center, IE, 5/6, p.65
Burgmaster table travel option,
IE, 3/11, p.52
Strippit computer control, exhib-
ited, 4/22, p.90
Strippit hole punching-notching
equipment, IE, 5/13, p.65

Houghton & Co., E. F.:
Cindol coolants and Aqua-Quench
250 exhibited, 5/29, p.50

Howmet Corp.:
Acquisition of Firth-Loach ap-
proved, 1/15, p.16
Turbine powered racers at Day-
tona sponsored, 1/22, p.33

Huck Mfg. Co.:
Bolt fastens from one side, IE,
2/26, p.52
Crimped nut fastener introduced,
5/6, p.24
Introduces a fastening system for
assembling soft core materials
as honeycomb panels, 5/29, p.35
Threaded fastener locks by crimp-
ing, IE, 6/10, p.106

Humble Oil & Refining Co.:
Multipurpose greases - lithium
based, IE, 1/15, p.60

Hunter Engineering Co.:
Builds foil mill for Japanese firm,
1/29, p.19
Coil coating line to run at 300
fpm, built by Reliance Steel &
Aluminum, 3/11, p.22

Huppert Co., K. H.:
Furnace functions from 400 to
1400 F, IE, 3/11, p.55
Furnace designed for most at-
mospheres, IE, 1/22, p.72

Hyde Park Electronics Inc.:
Metal sheet classifier sorts by
thickness, IE, 4/15, p.88

Hydraulic Machinery Co.:
Hydraulic impact hammer packs
powerful punch, 2/5, p.48*

Hydra-Matic: See General Motors

Hydro-Molding Co.:
Microhole drill combines NC,
EDM, 3/11, p.43

Hy-Pac Hydraulics Inc.:
Hydraulic power pumps, IE, 3/4,
p.102

Hyster Co.:
Acquires Lewis-Shepard, 1/22, p.28
Lift trucks for large loads, IE,
6/10, p.104
Upright truck, does high stacking,
IE, 5/6, p.70

I

I-T-E Circuit Breaker Co.:
Merger with Imperial-Eastman,
5/13, p.24

Illinois Tool Works Inc.:
Faster Div.-plastic cable clips are
adhesive-backed, IE, 5/20, p.74
Self-extruding head screw to join
metal sections, 5/29, p.35

Imperial-Eastman Corp.:
Merges with I-T-E Circuit
Breaker, 5/13, p.24

Imperial Smelting Corp. Ltd.:
Patented process applies coatings
of zinc dust to degreased fer-
rous metals, 4/29, p.23

Indiana General Corp.:
Ceramic magnet motor, IE, 2/5,
p.57

Linear output feature of new
tachometer, IE, 2/26, p.57

**Induction Heating & Engineering
Corp.**:
Induction heater . . . from job
shop to design specialist, 5/6,
p.52

Inductotherm Corp.:
Static power supply aids induction
melting, IE, 5/27, p.106

Industra Products Inc.:
Automatic stator winder machine,
IE, 2/5, p.60

Ingersoll Milling Machine Co.:
Builds two giant NC machining
centers for GE, 2/26, p.24
EDM unit, small size-high per-
formance, IE, 2/12, p.96

Ingersoll-Rand Co.:
Grinder series, IE, 5/20, p.71
Hoists for short, frequent lifts,
IE, 6/17, p.118

Inland Mfg. Co.:
Econ-O-Blast for glass bead clean-
ing, IE, 3/11, p.55

Inland Steel Co.:
Imports squeeze report, Roth-
felder, 4/8, p.20

Interlake Steel Corp.:
Acme's light duty compression
strapper can be automated, IE,
4/8, p.82

Acquisition plans for furniture
firms, 6/17, p.24
Builds technical center, 1/29,
p.20

New continuous casting process,
rapidly oscillating mold walls
featured, 3/4, p.20

**International Business Machines
Corp.**:

Addition to System 360, biggest
computer, IE, 2/12, p.85
Computer Model 25, helps small
user with big needs, price and
rental, 6/3, p.43

Image display unit, two way con-
versational link, IE, 5/13, p.70
Overseas branches need native
managers: Yankee stay home,
5/13, p.56

Plastic jig halves assembly time,
2/12, p.23

Radio frequency sputtering sys-
tem upgrades integrated circuits
(inventors pix), 3/4, p.22

Researcher tells STEEL: Super-

plasticity closer to production,
4/22, p.19

Slims area, converting warehouse
into computer cable factory
(aid to hard-core unemployed),
4/29, p.21

Time sharing computer on desk,
Model 150 System/360, 6/17,
p.23

Units feed computer, bypass
cards, IE, 5/13, p.65

International Data Corp.:

Computer shipments, worldwide
figures, 2/12, p.21

Ion Physics Corp.:
Ion beam lens 'writes' transistors,
4/29, p.23

J

JG Machine Works:
Replacing pneumatic logic ele-
ments with fluidics lowers costs,
6/17, p.86b*

Jones & Lamson: See Waterbury
Farrel

Jones & Laughlin Steel Corp.:
Jumbo drums save \$500 a month
grease and maintenance costs,
Aliquippa Wks., 2/5, p.48p*

Ling-Temco-Vought bids for con-
trol, 5/20, p.19

Taylor mill, Youngstown plant,
nears completion, 4/22, p.23
Tungsten electrodes instead of
silver; improves spectrometer
(analyzing carbon-sulfur content
in BOF heats), 4/22, p.82t*

Johns-Manville Corp.:
Asbestos reinforces thermoplastic
sheet, IE, 3/25, p.138n*

Jorgensen Co., Earle M.:
John Jorgensen: Service center
facilities, Seattle Forge Div.,
1/8, p.58

Joy Mfg. Co.:
Semiautomatic welding process
(Innershield) out - maneuver
conventional stick electrodes,
1/29, p.37

K

**Kaiser Aluminum & Chemical
Corp.**:
Aluminum cable facility, Bristol,
R. I., 5/13, p.24

Expands aluminum mills, 1/1,
p.32

Impacts big extrusion (memory
drum for Univac), 5/6, p.22

Ready Jr.: Aluminum price rise
justified, 4/8, p.20

Kaiser Engineers Div.:
Lower purity lime urged for L-D
process, BOF, 1/22, p.27

Kaiser Steel Corp.:
1968 Western steel market pre-
dicted in annual market re-
search study, 6/17, p.142
USWA-Kaiser share plan retained,
1/29, p.16

Kaydon Engineering Corp.:
Adds two needle bearing sizes,
IE, 3/25, p.130

Keene Corp.:
Acquires Pittsburgh-Erie Saw,
1/1, p.32

Koehring Co.:
Theew Lorain Div.: Welded con-
struction machine design revolu-
tionized by materials, 3/25, p.42

Koppers Co. Inc.:
Byrom reports: Koppers banks on
future of continuous casting,
1/1, p.108w*

Recruiting via shareholders pays
off, 4/29, p.21

Elastomeric coupling, IE, 6/3, p.54

Koppy Tool Corp.:
DeGain: How to wade into NC
without getting soaked (where
systems are compatible), 5/20,
p.52

Korad Corp.:
Laser welds fine wires, parts, IE,
1/1, p.138

Krautkramer Ultrasonics Inc.:
Instrument determines thickness,
IE, 4/1, p.62

Kress Corp.:
Slag carrier moves on Caterpillar
power, IE, 1/8, p.41

L

Lake Ontario Steel Co. Ltd.:
Continuous caster keynotes sim-
plicity (illustration), 6/3, p.43

Lamb Co., F. Jos.:
Builds computer to check Chevro-
let axle assembly, 3/4, p.22

Lamson & Sessions Co.:
Acquires Standard Mirror, 2/5,
p.21

Building \$2.2 million facility in
Stow, Ohio, for the Kent Ma-
chine Div., 2/19, p.24

Replacement fastening system, IE,
3/25, p.124

Landis Machine Co.:
Gear rollers for Buick, 4/15, p.11
Landis-Kosfeld GM-8 nut tapper,
exhibit, IE, 4/22, p.94

NC grinder guided by punched
card, IE, 3/11, p.51

Langenau Mfg. Co.:
Perrotta describes: Unusual core
design opens door to welded
sandwiches (DRC concept),
4/15, p.76

La Salle Machine Tool Inc.:
Acquires Italian firm, 5/27, p.24

Latrobe Steel Co.:
Cast Masters Div.: Cast to size
dies popularity, 3/4, p.24

Lea-Lonal Inc.:
Bright acid tin process for dense
deposits, IE, 1/15, p.62

Leeds & Northrup Co.:
Process computer system IE,
5/27, p.95

Lovejoy Flexible Coupling Co.:

Blake speaks at vibration an-
alysts' seminar, 4/15, p.65

Lucas Machine Div.: See New
Britain Machine

Lukens Steel Co.:

Repacking worn steam hammers
on job, 3/11, p.46j*

Lees-Bradner Co.:
Options reduce gear hobber setup,
IE, 5/6, p.64

Light Metal Alloys Co.:
Anticorrosion finishing process
dev., 6/24, p.22

Lehigh Foundries Co.:
Adopts triplex melting practice,
2/5, p.43

Lewis-Shepard Co.:
Merged into Hyster, 1/22, p.28

Libbey-Owens-Ford Glass Co.:
Merging Aeroquip as subsidiary,
6/10, p.23

Lincoln Electric Co.:
Builds Innershield-semiautomatic
welder for Joy Mfg., 1/29, p.37
Design changes in new models,
IE, 3/25, p.132
Fast freeze benefit of tubular
wire electrode, IE, 4/8, p.79
Twinarc system, submerged arc,
3/4, p.62a*

Lindberg Corp.:
Ground broken for combined tech-
center and furnace Div. near
O'Hare Airport, 3/4, p.24
Fast quench furnace, IE, 6/17,
p.128

Lindberg Hevi-Duty: See Sola
Basic

Linde Div.:
Commercial superinsulation panel
of vacuum metallized plastic-
seal, 5/20, p.46
Digital control for shape cutting
machines, IE, 6/10, p.99
Hardfacing, plasma-hot wire sur-
facing, 3/11, p.41

Ling-Temco-Vought Inc.:
Bids for control of Jones &
Laughlin (analyst predicts steel
stock fever), 5/20, p.19

Liquid Carbonic Corp.:
Builds plant near Burlington,
N. J., 1/22, p.28

Little Inc., Arthur D.:
Glaser: Superinsulators offer ef-
ficiency, 5/20, p.46
Licensed to use GE's knowhow in
metallizing, 6/3, p.44
NC spells growth for toolbuilders,
6/3, p.73

Litton Industries:
Louis Allis adds dc drives below
1 hp, IE, 6/3, p.55

Lockheed Aircraft Corp.:
Acid spray method ends etching
problem, 4/1, p.22
AF C-5A Galaxy spawns weight-
less manufacturing, 6/10, p.70
C-5 Galaxy cargo floor, beads
boost bonding, 6/24, p.54
C-5A techniques aid in building
Trijet, 6/10, p.71
Castable ceramic die material,
Pyro-Form, dev. jointly with
Spangler, 2/5, p.48s*

Hopkins: NDT in-motion radio-
graphs provide good picture,
1/22, p.57†

Jetliner may be purchased by
Eastern Airlines, 2/26, p.21

Selects suppliers for L-1011 trijet,
4/15, p.24

**Lockheed Shipbuilding &
Construction Co.**:
Steel processing facility plays dual
role in marine field, 4/22,
p.78j*

Loctite Corp.:
Adhesive applicator, to shafts,
IE, 5/27, p.96

Loopco Industries Inc.:
Gas generators-automatic cycle,
IE, 2/12, p.99

Lovejoy Flexible Coupling Co.:
Blake speaks at vibration an-
alysts' seminar, 4/15, p.65

Lucas Machine Div.: See New
Britain Machine

M

3M Co.: Adhesives-pressure sensitive tape, for Ford use, 3/18, p.20
Carbonless paper-computer combination, 3/11, p.46*

Transparent adhesive: IE, 1/1, p.138

MIF Industries Inc.: Nitrogen speeds electric annealing furnace, 1/22, p.27

MPB Corp.: Barrier films retain bearing lubrication, IE, 1/1, p.132
How to diversify and make it pay off, 4/22, p.71

M & T Chemicals Inc.: Buffing system, IE, 6/3, p.55

Machine Control Co.: Hartung: Describes small, low cost computer-director system to guide machine tools, 4/15, p.19

Machinery Electrification Inc.: Offers series of high speed counters, IE, 5/27, p.96

Mackintosh-Hempill: See E. W. Bliss

Magnaflux Corp.: Remover, designated Zyglo ZR-1, IE, 2/26, p.52

MacIchie & Wytmor Inc.: Study shows executive appointments up, 2/19, p.20

Mallory Co. Inc., P. R.: Patent for exothermic sintering process, 1/29, p.18

Manco Mfg. Co.: Hydraulic riveter, IE, 3/11, p.56

Manpower Inc.: 1968 employment, businessmen surveyed, 2/12, p.21
Employment increase seen for 2nd quarter, 5/13, p.20

Massey-Ferguson Ltd.: Rome, Italy, tractor plant, 4/1, p.21

Mathews Electronics Corp.: Adhesives sub for parts in dc appliance motors, 6/17, p.86f*

Matthews & Co., Jas. H.: Type printer, friction driven, IE, 6/10, p.100

Mauchly Systems Inc.: Cryptanalysis tech. studies failure data from solar battery tests, 1/8, p.15

Maynard Electric Steel Casting Co.: Automatic moldmaking helps cut small steel casting prices, 1/22, p.56†

McCord Corp.: Plastic rear bumper for '68 Mustang, 1/15, p.11

McDonnell Douglas Corp.: Adaptable backup plate is fixture for a five axis NC machine, cuts aerospace costs, 2/26, p.50h*

Adaptive control built by Cincinnati Milling 4/29, p.40
DC-10 program computer aided design, 5/20, p.23

Eastern Airlines may purchase jetliner, 2/26, p.21

Facilities needed for Douglas DC-10 Trijet, 5/13, p.62a*

McKee & Co., Arthur G.: Merging with Pickands Mather, 1/8, p.15

McKinsey & Co.: Patton: For executive growth—three tracks to run on, 1/15, p.37

McLouth Steel Corp.: Induction slab heater (Ajax) with GE ac solid state burner installed at Trenton, Mich., 2/19, p.44 and 3/4, p.50

McWane Cast Iron Pipe Co.: Scrubbers used at scale plant utilizing Dwight-Lloyd-McWane di-

rect reduction process, Ala. facility, 1/8, p.13

Menasco Mfg. Co.: Plating batch sidesteps hydrogen, 4/8, p.22

Mesta Machine Co.: Progressive cutting shear, IE, 6/10, p.112

Metal Improvement Co.: Shot peening machine, six nozzles, IE, 3/4, p.98

Metal Innovations Inc.: Powder metallurgical process makes better steel from scrap than from an ingot, 1/1, p.108v*

Meteo Inc.: Self-fusing metal coating is blend of chromium carbide and nickel aluminide, 4/1, p.23

Michigan Tool: See Ex-Cell-O

Micromatic Home Corp.: Pinion gears automatically honed, inspected, classified, IE, 2/26, p.58

Murray-Way Corp.: Unit finishes both sides of strip in one pass, IE, 5/6, p.67

Midland-Ross Corp.: Forms Nelson Metal Products Div., 4/1, p.24

French outlet, 4/1, p.24
Surface combustion heating element design, IE, 3/25, p.130

With Gilmore Steel, plans for Pacific Northwest integrated steel complex, 1/1, p.108e*

Waste disposal system, Radicator, IE, 2/26, p.54

Mid-States Steel & Wire Co.: Acquisition of Wickwire Bros., 3/4, p.24

Midvale-Heppenstall Co.: Dual blade saw cuts titanium, steel, IE, 5/6, p.65

Isostatic press for production, IE, 5/20, p.67

Miller Corp., Harry: Soluble oil coolant a rust preventive, IE, 2/26, p.52

Mimik Ltd.: Tracing attachment for regular work in lathes, IE, 2/5, p.52

Molded Fiber Glass Co.: Reinforced plastic for auto bumper, 1/15, p.11

Monarch Machine Tool Co.: Acquires Stamco, 5/20, p.22
Edlund adds machining center for bigger work, IE, 5/6, p.63
NC lathe handles large tubing and solid bar stock, 4/8, p.22 and IE, 4/15, p.79

Monsanto Co.: Polymer group, strong as rock, 4/15, p.22

Polymers dev. in Switzerland sub., 6/24, p.21

Synthetic hydraulic fluid-Pydraul 312 used at Harvey Aluminum, 4/15, p.78h*

Moog Inc.: EB weld saves precious valve with Sciaky welder, 3/18, p.22

Morgan Adhesives Co.: Vinyl wall covering for clean-room needs, IE, 5/6, p.64

Moore Special Tool Co.: Improved features in jig borer, IE, 4/8, p.78

Mosler Information Systems: Computer-microfilm system retrieves documents in seconds, 6/24, p.62b

N

National Acme Co.: Buying assets of Demmler Mfg., 1/1, p.32

Interphase devices fit control to processes, IE, 5/13, p.69

Machine rolls threads to 2 in. in diameter, IE, 4/22, p.98

National Broach & Machine Co.: Gears for tomorrow: Ben Bregi, 1/15, p.41

Gear rolling machine by yearend, 4/15, p.13
Inspection machine classifies gears, IE, 4/15, p.80

National Cam Corp.: Acquisition of Clover Industries Ltd., 1/1, p.32

National Cash Register Co.: Dual computers, 5/27, p.90q*

National Electric Welding Machines Co.: Hand fed drum welder, IE, 4/15, p.92
Special welder has drum type NC, 3/11, p.52

National Lead Co.: May acquire Bunting Brass & Bronze, 4/15, p.23

National Machinery Co.: Cold forming unit for wire stock, IE, 3/25, p.138h*

Five-die progressive header for cold forming parts, 1/1, p.108e*

Header adds die to extrude, trim parts, IE, 6/17, p.115

National Research Corp.: Superinsulators, "sandwiches" of featherlike aluminum and plastic for satellites, 5/20, p.46

National Steel Corp.: Creates National Steel Transportation Products Div., 1/29, p.20
Enters aluminum business; organizes National Southwire, 5/20, p.21

Land options for site of steel mill, Corpus Christi, Tex., 4/1, p.24
Weirton's future mill described, 1/29, p.20
Weirton re-uses mill roll coolant, 6/10, p.78

New Britain Machine Co.: Lucas capital expenditure for expansion, 4/15, p.24

New Milford Carbide Tool Co.: Silicone EDM fluid use, 3/25, p.58

Niagara Machine & Tool Works: OBI press line, IE, 3/11, p.58

Nordson Corp.: Airless spray pump moves paint at 3 gpm, IE, 3/4, p.100
Airless pump for high flow rates, IE, 5/13, p.68

Airless system sprays core, mold washes, IE, 5/27, p.102

Hot melt extrusion gun handles case sealing, IE, 1/15, p.62

North American Rockwell Corp.: Aluminum-silicon fluxless brazing process on aluminum plate, 4/22, p.78t*

Davis (Aircraft Group): The purchasing agent—corporate golden boy, 3/4, p.62d*

Diffusion bond beats forging, 2/12, p.22

Fluxless aluminum brazing used in Apollo, 4/8, p.51

Foreign machine tool interest, buys from Japan and Europe, 4/1, p.54a*

Rocketdyne runs nine drilling machines with in-house designed adaptive system, 5/29, p.34

Rocketdyne develops drill with adaptive controls, 6/17, p.86e*

Structural machining center, L. A., 2/5, p.22

Teflon-coated dies, Space & Info Systems Div., 4/15, p.21

Ultrasonic plating studied, 4/22, p.23

Northrop Corp.: Aircraft to use graphite structures, scientist forecasts, 6/24, p.46

Electrifying outer surface of supersonic aircraft could cut sonic boom, heat, 1/29, p.16

Engineer (John Kyle) suggests a nonprofit drafting school aimed at training unskilled personnel, 1/1, p.108g*

Gaeinnie (Norair Div.): Diffusion bonding, primed for production, 1/15, p.56d*

Skin mills-high speed installed at Marwin mills, England, 2/26, p.24

Northwest Technical Industries: Eddy current unit, flexible NDT tool, IE, 3/11, p.57

Norton Co.: Abrasive wheels show heat, wear resistance, IE, 4/15, p.92
Vacuum Equipment Div.: Dual chamber crystal growing furnace, NRC 2808, cost savings, 6/24, p.62a

Nugier Co., F. A.: Shop air pressure operates hydraulic bench press, IE, 3/18, p.58

O

Oakite Products Inc.: Pressure cleaner, Hydro Blitz, IE, 1/1, p.140

Ogden Metals Inc.: Acquiring Schumann & Co., 4/8, p.24

Ohio Broach & Machine Co.: Broaching units fit wide part size range, IE, 5/13, p.86

Ohio Seamless: See Copperweld

Olin Aluminum: Aluminum-copper-magnesium-silver alloy, high purity, 4/29, p.23

Olympic Screw & Rivet Corp.: Blind rivet fastens thin sheet materials or plastic panels, 5/29, p.35

O'Neal Steel Inc.: TV terminals (cathode ray devices) flash order processing data, 6/17, p.86d*

Opcu Inc.: System automatically lubricates conveyors, IE, 4/15, p.90

Optical Scanning Corp.: Unit simplifies computer feeding, IE, 3/25, p.119

Oxy-Catalyst Inc.: Catalytic oxidation system uses paint fumes in heating paint baking process, 1/15, p.48

P

Paasche Airbrush Co.: Eckaus: Why small firms ignore U. S. contracts, 6/24, p.23

Pacific Roller Die Co. Inc.: Spiral pipe mill, IE, 3/25, p.138e*

Package Machinery Co.: Reed-Prentice adds thermoset molding units, IE, 6/17, p.126

Palmer-Shile Co.: Metal decking for heavy die storage, IE, 3/4, p.107

Park-Ohio Industries Inc.: Tocco equipment for heating steel billets, IE, 5/6, p.66
Tocco induction heating equipment, automatic unit, IE, 2/19, p.64

Parker-Hannifin Corp.: Compacto-Press, IE, 6/24, p.63

Patterson-George Co.: Cutting torch design, cuts 'light up' costs, 1/1, p.108g*

Patterson Machine Co., G. C.: Wire straightener includes flying shear, IE, 3/4, p.107

Pennsylvania Engineering Corp.: Contract for U. S. Steel BOF furnaces, 6/10, p.23

Permitte Corp.: Water reducible aluminum coating, IE, 1/29, p.42

Phelps Dodge Corp.: Bargaining settlement, unions

agreed to separate contracts for mines and fabricating operations, 3/25, p.21

Photon Sources Inc.:
Laser system handles welding-drilling, IE, 6/3, p.58

Pickands Mather & Co.:
Consolidates with McKee, 1/8, p.15

Picker Corp.:
Cost of atom analysis cut, computerized spectrometer, 3/11, p.22

Mass spectrometer linked to computer, IE, 3/18, p.64
Mobile x-ray unit crawls inside cross country pipeline, 6/17, p.87

Pines Engineering Co.:
Units bend, cut, debur, (show exhibit), IE, 4/22, p.86

Pipe Machinery Co.:
Veeko gage checks vertical squareness, IE, 3/18, p.68

Pitney-Bowes Inc.:
Adds line of fluidic devices, IE, 5/20, p.72

Pittsburgh-Erie Saw Corp.:
Acquired by Keene, 1/1, p.32

Pittsburgh Plate Glass Co.:
Contact adhesive has high 'green' strength, IE, 2/26, p.54
Glass reinforced plastic sheet dev. with Union Carbide, 1/22, p.25

Pittsburgh Steel Co.:
Scrap preheating, oxygen-fuel oil burner, 3/4, p.56
Tests earnings capacity due to new facilities, 4/29, p.7

Plasteel Products Corp.:
Acquired by Rosewall, 1/8, p.15

Plymouth Tube: See **Van Pelt Corp.:**

Pneumo Dynamics Corp.:
Acquires Albany Products and Waltham Grinding Wheel, 5/20, p.22

Pratt & Whitney Aircraft Div.:
See United Aircraft

Pratt & Whitney Machine Tool Div.: See **Colt Industries**

Precision Castings Co.:
Brammer: Diecastings, molded plastics 'not natural enemies', 3/18, p.23

Precision Forge Co.:
Converts forges to HERFs, 2/12, p.22
Drop forge converted to big HERF machine, was 1954 model of Chambersburg drop-forging hammer, 4/15, p.78k*

Precision Metal Products: See **Fairchild Camera**

Pre Finish Metals Inc.:
Foam coated coil, IE, 5/6, p.63

Pressure Blast Mfg. Co. Inc.:
Wet blast cleans rods, tubes, IE, 1/8, p.38

Prestolite Co.:
New line for electroplating ABS plastic parts, Bay City, 1/15, p.16

Professional Instruments Co.:
Line of universal spindles this spring, 4/8, p.57

Pruden Products Co.:
Jack truss systems aid in erecting pre-engineered buildings, 2/19, p.52

Q

Quality Gage & Mfg. Co.:
Time sharing computer enables drawings to go direct to NC tape, 4/8, p.20

R

RCA Laboratories:
Hologram field depth extended, 1/1, p.31

Racine & Vickers-Armstrongs Inc.:
Digital control on flying cutoff drive, IE, 1/22, p.68

Racine Hydraulics Inc.:
Merger into Rex Chainbelt, 1/22, p.28; revised agreement signed, 6/17, p.23
Holding valve for mobile equipment, IE, 3/4, p.108

Radio Corp. of America:
Electron microscope-higher power for U. S. Steel's Monroeville research center, 4/29, p.22

Railweight Inc.:
Forecast: Trains weighed 'on the move', 2/26, p.50f*

Ransburg Electro-Coating Corp.:
Electrostatic fluidized bed coater to be demonstrated at corrosion show, 2/26, p.22

Rathbone Mfg. Co.:
Simplified controls on semiautomatic chucking lathe, IE, 1/29, p.42

Raycon Corp.:
Builds microhole drilling unit that combines NC, EDM, 3/11, p.43

Raytek Inc.:
Rifle stock attachment on infrared thermometer, IE, 6/3, p.58

Read Corp.:
Welding Div., deburring unit prepares drilled tube sheets, IE, 1/1, p.130
Welding positioner, double action, IE, 5/13, p.67

Reading Co.:
Forecast: Trains weighed 'on the move' with computer, track scale, etc., 2/26, p.50f*

Reed-Prentice: See **Package Machinery**

Reed Rolled Thread Die Co.:
End rolling head, yoke operated, IE, 4/1, p.60

Redman Tools Ltd.:
Supplies plant (finished bumper bar) at Moscow car factory, 4/15, p.24

Reliance Electric Co.:
AC motors resist problem contaminants, IE, 4/8, p.74
Adjustable speed drives, IE, 6/24, p.64

Reliance Steel & Aluminum Co.:
Builds coil coating line facility for Hunter Eng., 3/11, p.23

Rem Metals Corp.:
Titanium casting plant planned, 1/15, p.67

Renault Inc.:
NC diecasting system, 1/15, p.13

Republic Aviation Div.:
Safety sedan design, federal program, 2/5, p.11

Republic Steel Corp.:
Adds BOFs at Buffalo, 2/5, p.21
Boyer, new president, forecasts capital outlay, 5/27, p.20
Capital spending estimated, 4/8, p.24

Expands South Chicago plant, 3/4, p.24

Patton urges Congressional action on import quotas on pig iron and steel mill products, 6/24, p.19

Vacuum melt shop, Canton, doubles capacity with three new consumable electrode, vacuum melt furnaces, 2/19, p.54a†

Rex Chainbelt Inc.:
Buys Lear Siegler's Air Valves Div., 1/29, p.20

Merging Racine Hydraulics, 1/22, p.28; revised agreement signed, 6/17, p.23

Qac vibrating process can heat, cool, dry, IE, 6/3, p.5

Reynolds Aluminum Co.:
Forming aids ore reduction pots, hydraulic press, 3/11, p.46n*

Reynolds Metals Co.:
Machinery Div. new, Cleveland, 5/13, p.24

Rheem International Inc.:
Buys assets of Rexach Steel, P. R., 3/18, p.24

Roblin Steel Corp.:
Hot saw conditions cast billets, joint dev. with Bliss, 3/4, p.23
Seedling thrusts out new roots: Daniel Roblin Jr. reports building an integrated steel company (resurrects CF&I rod mill, etc., and acquires Erie Forge), 5/20, p.48

Robotron Corp.:
Induction hardeners packaged for job sites, IE, 6/24, p.64

Rochester Datronics Inc.:
Optical reader eases shop errors, 1/8, p.14

Rock-Mill Inc.:
Contour mill designed for newcomers to NC, 5/20, p.72
Features of vertical mill, IE, 4/1, p.63

Rockwell Mfg. Co.:
Acquisition proposed for United Gas Industries Ltd., 2/19, p.24
Buys remains of an Australia valve firm, owned half, 1/15, p.16

Customer service deterioration crime of century: Daugherty report, 4/1, p.20
Lathe has clutch-brake control, IE, 6/3, p.56
Rockwell Jr.: Global business pushes peace, 5/6, p.20

Rohr Corp.:
Touch Tone telephones (IBM) used by employees to insert facts into computer, keeps track of order progress, 4/15, p.78f*

Rolled Alloys Inc.:
Joint development with Simonds Steel: Nickel-chrome-iron alloy resists turbine's 1725 F, 1/15, p.40

Roller Bearing Co. of America:
Optical inspection machine checks bearing pins or needles, 4/8, p.22

Rosewall Industries:
Acquires Plasteel Products, 1/8, p.15

Rotor Tool Co.:
Air tool market, article, 1/22, p.50

Rowe Machinery & Mfg. Co.:
Automatic cut-to-length blankline, IE, 5/27, p.105
Coil feeding unit, IE, 3/4, p.110

Rucker Co.:
Truck cabs, bodies filed until needed, 5/13, p.64a*

Ruesch Machine Co., H. J.:
Gang slitters work to close tolerances, IE, 3/25, p.119

Rundt & Associates, S. J.:
Gold rush reality, 3/25, p.37

Ryerson & Son Inc., Joseph T.:
Trains hard-core unemployed at p.72

S

SKF Industries Inc.:
Linear motion assembly unit, Pantograph, inserts metal terminals in printed circuit board, 2/26, p.50d*

St. Joseph Lead Co.:
Patent for dispersion strengthened lead, 1/22, p.25

Sakas Inc.:
Automatic traveling cutoff-saw, IE, 2/5, p.58

Sandvik Steel Inc.:
Ejector drilling cuts time 80%, 5/27, p.90j*

New carbide insert grade, RIP, cuts twice as fast, 4/8, p.22

Santa Fe Mfg. Corp.:
Air film 0.001 in. thick, IE, 5/27, p.106

Santa Fe Trail Transportation Co.:
Orders 600 piggyback service units, 3/18, p.80

Sanymetal Products Co. Inc.:
Computer-produced drawings speed production, 6/10, p.80

Sawhill Tubular Products Inc.:
Merger with Cyclops, 4/29, p.24

Scam Instrument Corp.:
Annunciator design pares space needs, IE, 4/8, p.71
Digital recorder monitors mill, IE, 3/4, p.96

Schmitz & Co. Inc.:
Report on management succession, average ages of president, executive v. p. and vice president, 1/8, p.13
Newcomers win top executive jobs, 5/20, p.24

Screw & Bolt Corp. of America:
Selling Fastener Div. to Modulus, 6/3, p.24

Sea-Air Chemical Corp.:
Nontoxic liquid (Rust Barrier), IE, 1/1, p.140

Service Machine Co.:
NC center operates in tandem with existing machines, 4/22, p.75

Setco Industries Inc.:
Foreseen rise in hydrostatic spindles, 5/6, p.22
Testing machines for grinding wheels to assure safety, 5/13, p.64f*

Sheetmaster Corp.:
Instrument reads feet per minute, IE, 4/1, p.64

Sheldon Machine Co. Inc.:
Cross slide on engine lathes, 1/1, p.135
Lathe slides speed machining, IE, 6/3, p.53

Shell Chemical Co.:
Warm formed plastic sheets, 5/6, p.22

Sherwin-Williams Co.:
IBM system for retail outlets' inventory needs, 4/1, p.22

Shredmaster Corp.:
Conveyor for paper shredder, IE, 1/8, p.41

Sierra Electric Corp.:
Acquired by Sola Basic, 1/22, p.28

Sikorsky Aircraft: See **United Aircraft**

Simonds Steel: See **Wallace Murray**

Singer Co.:
Acquires American Furnace, 1/15, p.16
Agreement to merge with General Precision, 4/15, p.23

Singer Instrument Co. Ltd.:
Micromanipulator may aid microengineering, 5/13, p.64f*

Sintered Specialties:
Stainless P/M partmaker licks corrosion problem, 5/27, p.90e*

Size Control Co.:
Air hardening steel cuts rejects of thread ring gages, 6/24, p.54

Smith Corp., A. O.:
Powder compacts welded via tungsten metal arc (TIG) process and mild steel filler, 3/18, p.22

Snyder Corp.:
Auto brake disc grinding, costs reduced with double wheel precision unit, 6/17, p.82

Sola Basic Industries:
Acquires Dielectric, 5/6, p.24
Acquires Sierra Electric, 1/22, p.28
Heavy-Duty transformer, IE, 4/15, p.90
Lindberg electroslag refining equipment, IE, 2/5, p.50
Lindberg Heavy-Duty power supply, IE, 6/17, p.116

Soliman & Associates:
Computer system to match job orders to job shop, 4/1, p.37
Forecast nationwide computer system to match machining work orders, 3/11, p.19

Soudronic Corp.:
Resistance welder joins sheet at 140 fpm, 3/25, p.22

South Bend Lath:
Exhibits lathe for close tolerances, IE, 5/29, p.52

Sovereign Industries Inc.:
Jap firms may buy iron ore pellets, \$750 million contract, 4/8, p.91

Spangler Processes:
Develops powdered ceramic for castable dies with Lockheed, 2/5, p.48*

Speedrack Inc.:
Armco computer design assistance, 5/6, p.40

Sperry Products: See Automation Industries

Sperry Rand Corp.:
Univac computer can be tape-disc oriented, IE, 1/29, p.41
Univac memory drum, Kaiser impacts big extrusion, 5/6, p.22
Univac to build nationwide network of data processing service facilities, 3/4, p.24

Vickers: Price to performance benefits, piston pump, IE, 2/12, p.98

Vickers pump lines eliminate noise, 4/8, p.20
Vickers (Rhodes): Fluidics need years of application study, 4/22, p.78x*

Spraymation Inc.:
Hot melt applicator-adhesives, IE, 1/15, p.60

Stamco Inc.:
Merged into Monarch Machine Tool, 5/20, p.22

Standard Pressed Steel Co.:
Hallowell Jr.: Labor costs forever up; capital: Only hope for business, 5/20, p.57
Nypon on threads locks fasteners, IE, 3/4, p.96

Standard Tool & Mfg. Co.:
Transfer machine employs double-deck fixtures, 2/12, p.22

Stanley Works:
Maintenance primer service life improved, IE, 1/15, p.61
Slit coil bander, Strapping Div., IE, 2/12, p.85
Strapping self-healing (zinc-epoxy coat), IE, 1/1, p.126

Stanray Corp.:
Acquires Johnston Industries and Electronics, 5/13, p.24
Acquires Mead Specialties, 1/15, p.16

StarCut Sales Inc.:
Guidelines for successful machine tool importing: James Biddinger sums up difference between marketing for U. S. and foreign equipment makers, 1/8, p.32
Exhibits machine tools, special arbors, IE, 5/29, p.50

Star Mfg. Co.:
Makes pre-engineered metal buildings, 2/19, p.49
Twinarc system—for submerged arcwelding electrodes, 3/4, p.62a*

Starrett Co., L. S.:
Bench micrometer also made in a metric version, IE, 4/22, p.90

Steel Co. of Canada Ltd.:
Blast furnace, 4000 tons a day, 2/12, p.84a*

Sterling Electric Motors Inc.:
Rotating units control slave motor speeds, IE, 4/8, p.78

Stewart-Warner Corp.:
Acquiring Heat Transfer Products Div., Yates-American, 2/19, p.24

Strippit: See Houdaille Industries

Sun Oil Co.:
Jumbo lubrication drums developed for J&L Aliquippa Works, 2/5, p.48*

Sunbeam Corp.:
Acquires Vacuum Engineering, 2/19, p.24

Sunbeam Equipment Corp.:
Pusher-type annealing furnace reduces heat treat cycle time, 2/19, p.56d*

Sundstrand Corp.:
Omnitrol on-line NC computer control, 3/11, p.44
Omnitrol computer control for NC slotted for six potential customers, 3/4, p.19; for Bunker-Ramo or Bendix, 3/11, p.24

Superior Tube Co.:
Tube finish saves polishing step, IE, 3/18, p.62

Surface Combustion: See Midland-Ross

Sweco Inc.:
Exhibits automatic finishing mill, IE, 5/29, p.52

T

TRW Inc.:
Acquires Hazleton Laboratories, 3/4, p.24

Acquisition of United-Greenfield possible, 4/22, p.23

Acquires Mission Mfg. and International Controls Corp., Houston, 2/19, p.24

Acquiring Reda Pump Co., 6/3, p.24

Converter has overload protection, IE, 3/4, p.107

P/M eyed for superalloys, 6/3, p.22

Tapmatic International Sales:
Tool changer fits single spindle machines, IE, 2/5, p.62

Taylor-Winfield Corp.:
Tangent benders, IE, 4/1, p.55

Teledyne Inc.:
Consolidates sales-marketing force of acquired Firth Sterling with two other firms, 2/26, p.24

Texas Instruments Inc.:
Metal-polymer composites easily formed, 4/1, p.24

Textron Inc.:
Merges Fafnir Bearing, 1/22, p.28
See also Bell Helicopter

Thayer Scale Div.: See Cutler-Hammer

Thermo Electron Corp.:
Steam engine study with Ford, 3/25, p.24

Thermo-Lab Instruments Inc.:
Oxygen analyzer monitors boxes, IE, 4/8, p.74

Thew Lorain Div.: See Koehring

Thorndike DeLand Associates:
Recruiting situation discussed at STEEL's brainstorming session, 2/12, p.76h*

TiLine Inc.:
Plant to cast metal bodies around preformed linings of exotic metals, 1/29, p.52

Tinius Olsen Testing Machine Co.:
Unit checks ductility for HERF processes, IE, 1/15, p.61

Titanium Technology Corp.:
Newly formed, 4/1, p.24

Tocco: See Park-Ohio Industries

Torrington Co.:
Acquires three Connecticut plants, 4/15, p.23

Towers, Perrin, Forster & Crosby Inc.:
European wage practices face American firms, 1/8, p.16

Ward reports: American firm in Europe needs sensitivity, 2/19, p.23

Towmotor Corp.:
Truck gets hydrostatic drive system, IE, 1/1, p.125

Townsend Co.:
Rivet setting machine is fast, TRS Div., 2/5, p.48

True-Trace Corp.:
Tracing valve, IE, 3/18, p.66

Tube Distributors Co. Inc.:
Aluminum inventory buildup as hedge against possible June strike, 1/22, p.23

Tubotron Inc.:
New stainless tubing (Ti-Krome) for plumbing and heating challenges copper, 4/15, p.67

Turner & Seymour Mfg. Co.:
Vibratory straightener, IE, 4/8, p.82

Union Carbide Corp.:
Alloy 188 stays tough in heat, 4/1, p.23

Alloy ups nitrogen recovery, 3/11, p.46k*

Electrode checks aircraft engines, 3/25, p.22

Ferrochrome alloy dissolves faster, 4/1, p.54d*

Glass reinforced plastic sheet dev. with PPG, 1/22, p.25

Graphite crystal reflects x-rays, 6/10, p.22

Kraud Dept. Lasers drill tiniest holes, 4/29, p.23

Materials Systems Div.: Integrated plant processes refractory metals, 2/26, p.43

Tarrytown Works expanded, 3/25, p.24

U

Udyline Corp.:
Hoist system automates plating, IE, 6/24, p.63

Merged into Hooker Chemical, 1/8, p.15

Ultramatic Equipment Co.:
Material handling system separates parts from abrasive media, IE, 1/15, p.58

Vibratory finisher deburrs 8 ft parts, 3/11, p.56

Unimation Inc.:
Two robots help process spring seats at Ford plant, 2/12, p.84s*

Uniroyal Inc.:
Vila speaks at NICB: Constructive leisure time, 2/5, p.21

United Aero Products:
Extruded shape cuts jet engine part cost, 4/22, p.78v*

United Aircraft Corp.:
Ceramic foam insulates to 3,000 F, 2/19, p.22

Hamilton Standard space tool-hand welds, bonds, 5/27, p.21

P&W diamond dressing tool, a one-shot allows simultaneous grinding, 1/1, p.108h*

P&W's Florida Research Center: Compact powder handled in inert gas, 6/24, p.21

Programmers at Sikorsky turn to NC in threading hub plates, 4/1, p.54d*

United-Greenfield Corp.:
Acquiring U. S. Diamond Wheel, 5/20, p.22

May merge into TRW, 4/22, p.23

USI-Clearing Div.: See U. S. Industries

U. S. Burke Machine Tool Co.:
Duplex half mill, IE, 2/26, p.53

U. S. Drill Head Co.:

Gearless milling head, weight costs low, IE, 4/1, p.58

U. S. Electrical Motors:
SCR drives rated, IE, 1/8, p.40
Speed reducer, reduced weight, size, IE, 2/5, p.58

U. S. Industries Inc.:
Acquires Gloray Knitting Mills, 4/22, p.24

Acquiring Con-Plex Inc., 5/13, p.24

Acquiring two Mich. firms, 6/17, p.24

Merging Capital Wire & Cable, 6/3, p.24

USI-Clearing enters plastics market, 2/12, p.23

USI-Clearing to build presses for Russian auto plant, 4/22, p.24

USI-Clearing Div. exhibits straight side presses, IE, 5/29, p.52

U. S. Steel Corp.:
1977 steel consumption forecast by Myers (marketing), 3/11, p.21

Acquisition of GAT Plastics Div., 3/11, p.24

Adding basic oxygen process shop at Lorain, 2/5, p.22

Blough reports sales up, 5/6, p.20

Enters air transport field, executive jet leases, 6/17, p.21

Expanding in Argentina, Acindar facility, 1/15, p.16

Gary plate mill: Area lube (centralized lubrication system) control panels keep plate mill rolling, 2/19, p.56*

Gary Wks.: New 84 in. hot strip mill debuted, 5/20, p.55

Gary Wks. gets pollution check by four-state conference group, 3/4, p.20

Geneva Works to make wider sheets with new heavy-gage shear line, 5/29, p.58

Heat and quench process line for plates (fine grain), 4/15, p.22

Joliet rod and bar mill, automated coil handling, 5/27, p.90m*

Larry: Free trade can be 'traumatic', 5/27, p.20

Ocean-safe wire rope, IE, 6/17, p.119

Office building (Manhattan) structural steel on outside, 4/15, p.23

Plasma cutting, search for more weldable steels, cover pic, 3/25, p.41

Psychiatrist-Dr. MacIver: How middle managers feel about jobs, handle stress, 1/22, p.43

South Wks., four-strand billet caster scheduled, 5/27, p.23

Stainless solves corrosion cracking, tar plant, 4/1, p.23

Thornton: Steel for automotive use (materials battle), 2/26, p.11

USWA-local issues to be resolved: Local 1220 tries for Crucible type deal, 5/20, p.39

Welding tool required by tomorrow's steels (cover pic), 3/25, p.41

Univac: See Sperry Rand

Universal Cyclops: See Cyclops Corp.

Universal Drafting Machine Corp.:
Growth predicted for automated design, 4/29, p.20

Modules customize drafting machines, IE, 5/20, p.67

Universal Gas Plating Corp.:
Gas plating practical now in some areas, also called chemical vapor deposition, coating and forming process, 1/8, p.34

Universal Oil Products Inc.:
May merge Calumet & Hecla, 1/8, p.16

Urick Foundry Co.:
Multimillion dollar foundry in operation, 4/8, p.24

V

VSI Corp.:
Titanium fastener facility completed, 5/27, p.23

V & O Press Co. Inc.:
Rolling and trimming machines, IE, 1/29, p.41

Vacuum Industries Inc.:
Quench attachment fits furnaces, IE, 5/13, p.69

Vahl Inc.:
Ejector system cuts drilling time 80% (aircraft trunnion pins), 5/27, p.90j*

Van Pelt Corp.:
Plymouth Tube Div. opens new production line, 3/4, p.24

Vare Corp.:
Plans facility to make large steel plant ingot molds, 3/4, p.24

Varian Associates:
Sputtered plating works in a vacuum, IE, 6/10, p.99

Weeko Instruments: See Pipe Machinery

Yerson Allsteel Press Co.:
Expands into Belgium, 4/22, p.24

Vic Mfg. Co.:
Re-used solvent vapors reduce costs, coughs, 3/11, p.46n*

Vickers: See Sperry Rand

Vulcan Inc.:
Buys Titzel, Keystone Fluid, 4/22, p.23

Vulcan Tool Co.:
Grinding attachment, IE, 3/4, p.101

W

Wall Colmonoy Corp.:
Four sealers augment metallizing protection, IE, 4/15, p.84

Wallace Murray Corp.:
Simonds Steel: Joint dev. with Rolled Alloys—nickel-chrome-iron alloy resists turbine's 1725 F, 1/15, p.40
Simonds Abrasive gets automated press (grinding wheels), 4/8, p.24

Wallace Supplies Mfg. Co.:
Automatic bender, IE, 3/25, p.138e*
Machine combines belt-brush finishing, IE, 1/1, p.126
Pipe bender, IE, 1/29, p.45

Warner & Swasey Co.:
Aids unemployed, forms company in Hough area to aid Negro, 4/29, p.21

Coil conversion system handles heavy gages, Lima Div., IE, 1/22, p.68
Corporate headquarters moves to University Center, 1/29, p.20
Forms Electronic Products Div., Solon, Ohio, 2/19, p.24

Warner Electric Brake & Clutch Co.:
Linear actuator unites motor, ball screw, brake, IE, 5/20, p.69
Tensioning, IE, 1/1, p.128
Register control for linear posi-

Waterbury Farrel:
J&L VTR system: Video tape puts the boss on the road, sales campaign for new line of lathes, 5/20, p.45
J&L enters NC lathe market, 4/29, p.22
J&L 4 slant bed NC lathes, IE, 5/6, p.69

Wean Industries Inc.:
Changes name to Wean United Inc., 5/13, p.24

Weatherhead Co.:
Low cost valve controls proportional flow, IE, 4/15, p.88

Webber Mfg. Co. Inc.:
Chamber controls temp., humidity, IE, 3/11, p.56

Weirton Steel: See National Steel

Welded Products Inc., E. B.:
Holland (president) reports EB weld job shop, 2/19, p.54

Welduction Corp.:
Induction system bonds polyurethane to steel, IE, 5/20, p.70

Weltronic Co.:
Welder control, trip; sequence design, IE, 4/1, p.64

West Instrument Corp.:
System controls wide temperature range, IE, 3/11, p.53

Western Gold & Platinum Co.:
Isostatic pressing via 16 in. Navy gun, 1/22, p.27

Western Services Corp.:
Precision lathe offers true roundness, 4/22, p.82e*

Westinghouse Air Brake Co.:
Acquires ScoopMobile, 1/22, p.28
Acquires Vacuum Ceramic, 3/18, p.24

Acquires American Standard, 6/17, p.24
Flow restrictor for fluidic logic systems, IE, 3/11, p.52

Mass transit study for Housing & Urban Development, 6/24, p.20

Westinghouse Electric Corp.:
Article (cover pic) STEEL Feature: Taking the paperwork out of managing, Paul Gaddis reports, 1/29, p.33

Air bearing transfer conveyor system moves heavy transformers through 18 workstations, 5/27, p.86

Bubble-scrubbing used in desalination, 4/22, p.78p*
Builds plant, Tenn., to make hermetic motor parts, 3/18, p.24
Computer control for steel, Turner reports, 5/13, p.20

Computer costs lower; Fritz, manager, technical planning, 1/8, p.12

Electron beam cuts rocks, Research Lab, 5/27, p.22
Electron beam refines tantalum, developed by two researchers, 4/22, p.23

Filament wound rings shrink transformers, 6/24, p.22

Ion pump marketed, 5/13, p.24

Mine moon dust magnetically: Dr. Sun, Radiation & Nucleonics Group, 2/19, p.22

NC control has integrated circuitry, IE, 5/29, p.51

NC services market eyed, 6/10, p.23

Nuclear plant, Columbia, S. C., 4/8, p.24

Pittsburgh area plant for hardcore job employment, 6/17, p.21

Reduced installation cost via simplified grouped construction, IE, 2/12, p.96

Relay easily converts to normally open or closed, 5/20, p.70

Titanium added to fluorescent lamp glass, IE, 6/17, p.130

Urban Systems Development Corp. formed, low income housing construction, 5/13, p.20

Wheelabrator Corp.:
Hesburgh (V. P.-international)

speaks on joint venture operations: Wheelabrator charts course for overseas profits, 3/11, p.46a*

Lorco vibratory finisher, IE, 6/10, p.109

Wet scrubber reduces contaminants to sludge, IE, 2/19, p.65

Whirl-Air-Flow Corp.:
Three acquisitions, 4/8, p.24

White Consolidated Industries Inc.:
Merges Blaw-Knox, Bullard, 4/1, p.24

White Motor Corp.:
Sidearm lift trucks use oil clutch design, IE, 1/15, p.62

White Pine Copper Co.:
Contract settlement highlights with USWA, 2/5, p.37

Whitney Corp., W. A.:
Die chart can slash stock by 50%, 4/1, p.54e*
New beam line punctures hole layout punch time, 5/20, p.51

Whittaker Corp.:
Crucible merger proposed, 4/22, p.21

Wickes Industries Inc.:
Acquisition plans by Hitco, 3/4, p.24

Wickwire Bros. Inc.:
Acquired by Mid-States Steel, 3/4, p.24

Wilson Instrument:
Automatic tester for short runs, IE, 5/29, p.50

Wisconsin Machine Corp.:
Hydralock system adds overload protection, IE, 1/15, p.62

Wolverine Brass Works:
Carbonless paper-computer combination, 3/11, p.46k*

Wood's Sons Co., T. B.:
Adds two models to MS drives, IE, 2/26, p.57
Ultracon drives, IE, 3/25, p.138j*

Woodward Iron Co.:
Acquisition of Murray Rubber, 1/8, p.15
Capital expenditures planned, 4/15, p.98

Y

Yoder Co.:
Slitting line package, IE, 6/17, p.127

Youngstown Sheet & Tube Co.:
Blast furnace, Indiana Harbor Wks., averages 4,000 tons a day, 2/12, p.84a*
Indiana Harbor hot strip mill ready to roll, 6/3, p.24

Z

Zeidler Tool & Die Co.:
Zeidler reports on NTDPMA computerized capacity reporting in shops, 4/1, p.83

